THIS WEEK'S National Petroleum NEWS

Coming Meetings

Oil States Advisory Committee, Denver, Col., Aug. 10.

American Chemical Society, Petroleum Division, Buffalo, N. Y., Aug. 30 to Sept. 4.

National Aeronautic Meeting Society of Automotive Engineers, Cleveland, O., Sept. 1, 2, 3.

North American Gasoline Tax Conference, Denver, Col., Sept. 9, 10, 11.

Kentucky Petroleum Marketers Association, Louisville, Ky., Sept. 9.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 16, 17, 18.

American Institute of Mining and Metallurgical Engineers, Petroleum Division, Houston, Tex., Oct. 2, 3.

National Safety Council, Chicago, Oct. 12 to 16.

American Petroleum Institute annual meeting, Stevens Hotel, Chicago, Nov. 10, 11, 12.

Third International Conference on Bituminous Coal, at Carnegie Institute of Technology, Schenley, Park, Pittsburgh, Pa., Nov. 16, to 21.

Geological Society of America, Mayo Hotel, Tulsa, Dec. 28 to 31.

American Association of Petroleum Geologists, Oklahoma City, Okla., March 17, 18, 19, 1932.

NATIONAL PETROLEUM NEWS

Vol. 23 No. 28

Published by

The National Petroleum Publishing Co.
1213 W. Third St., Cleveland, O.
Tel. CHerry 7672

Branch Offices:

Tulsa, 904 World Bldg., Tel. 3-7132.

New York, 342 Madison Ave., Tel. Vanderbilt 3-3950 and 3-3951.

Houston, 2420 Gulf Bldg., Tel. Fairfax 6286.

Chicago, 35 E. Wacker Drive, Tel. State 4141.

Subscription rate $3.50 per year, U. S., Mexico and Canada; $5 Foreign countries. Current copies 10 cents; for back issues more than two months old 25 cents per copy.

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General

Shortsightedness of a Few Individuals Responsible for 10 Cent Crude..... 19
Standard of Indiana Discontinues Lease and Loan of Equipment 22
Texas Legislature in Emergency Session to Tackle Regulating Production 23
Proration Opponents to Carry Their Fight to Austin 24
500,000 Barrels Outlet for East Texas Within Two Months 26
More than 100 Wells in East Texas Without Outlet for Crude 26
Mid-Continent Producers Plan Shutdown to Force Crude Prices Upward.... 27
Eighteen Companies Taken into Consolidation of Quaker State Interests.... 29
Continental Completing Improvements at Ponca City Refinery 31
American Petroleum Institute Weekly Refinery Figures 32
Los Angeles Business Urges Public to Support Gasoline Prices 33
Review of Late Production News 65
N.P.N. Weekly Mid-Continent Refinery Operations 66

Merchandising

Copper Line with Soldered Joints Saves 30% in Installation Cost 55
Oil Stations Sell Batteries in Customer's Garage 57
The Tank Car Station, Conclusion, Part 3 61
Merchandising and Jobbing Ideas 64

Engineering

Direct Cracking of Light Crude Oil for Anti-Knock Gasoline,—*by E. F. Nelson and Gustav Egloff* 34
Automatic Control is Stressed in Wellsville Refinery 37
Hydrogenation Development in Russia, Part 2,—*by V. N. Ipatyev* 41
Pioneering with "Bottled Gas," Part 2,—*by A. N. Kerr and C. L. Kerr*..... 49

Markets

Chicago; Gasoline Quiet After Crude Cut 69
Mid-Continent: Gasoline Prices Withstand Crude Cut 71
Refinery Price Tables 72, 74, 75
California: Higher Crude Prices Keep Market at Standstill 78
Pennsylvania: Bright Stocks Rise 79
Eastern: Retail Price Cuts Slow Gasoline Buying 80
Gulf: Buyers Less Active, Gasoline Prices Lower 80
Wax: Buyers Show Little Interest 80
Complete Seaboard Prices 82
Tank Wagon Price Tables 84
Aviation Gasoline Price Tables 85
Crude Oil Prices, All Fields 87, 89

Departments

The Editors' Viewpoint 21
Lazy Bench 60
New Books 67
Foreign Opportunities 72
Letters to the Editor 72
Oil Company Trademarks 88
New Stations Building 90
Oil Company Finance 90, 92, 94
N. P. N. Service Record 93

HOWARD A. COFFIN, vice-president in charge of sales, has been elected president of the White Star Refining Co., Detroit. H. B. Earhart, founder of the company in 1910 and the president, has been elected chairman of the board. Mr. Earhart also is a director of the Vacuum Oil Co., with which White Star is affiliated.

Prior to joining White Star Mr. Coffin was an executive with the Cadillac Motor Car Co. Besides his duties with White Star he is active in marketing affairs as chairman of the Michigan Executive Code Committee.

Mr. Coffin graduated from Brown University, and is now a member of its board of regents. He is a director in the Detroit Y. M. C. A., Detroit Golf Club, and the Detroit Athletic Club, and is a past president of the Rotary Club.

NATIONAL PETROLEUM NEWS

Published at
1213 W. Third St.
Cleveland

Branch Offices
Tulsa, New York, Houston,
Chicago

Vol. 23 CLEVELAND, July 15, 1931 No. 28

Shortsightedness of a Few Individuals Responsible for 10-Cent Crude

CLEVELAND, July 14

CRUDE oil is 10 cents a barrel at the well—a figure heretofore used to illustrate a theoretical irreducible minimum price.

The Texas legislature has been called into emergency session, starting today, to pass legislation giving the state authority to enforce its conservation orders. So far it could issue the orders, but it had no way of making companies or individuals live up to them.

In Oklahoma and Kansas, and in some fields in Texas, producers are shutting in their wells, refusing to sell their oil at the present prices.

These are the latest developments in the fast moving situation in the southwest.

So rapidly have matters moved to reach their present status that the very intensity of the crisis may bring about a reaction and improvement almost as fast as demoralization ensued.

Oil men in other territories, and in other branches of the industry may well scratch their heads and ask for an explanation of the anomaly of the oil industry in general improving its situation — gasoline and crude oil stocks are being steadily reduced—and the fiasco in production development in the southwest which has brought 10-cent-a-barrel crude.

East Texas is the key to the situation. A lot of oil, in barrels taken from the ground daily, and also a lot of personal feeling have developed there within the past few months.

East Texans, by and large, in the past had not enjoyed more than their share of the material blessings in this world, assuming for the moment that the oil development there to date has been a blessing. Also Texas is a big state and people live more to themselves and to the interests of their own section of the state than in other parts of the country.

Then oil did come to East Texas, in a field, or rather district of several fields, of greater potential production possibly than in the history of the country. Unfortunately for East Texas, and for the industry at large, and the public as well, its discovery came on top of the discovery of other flush fields and at a time when more oil could be brought from the ground in the known fields than the country could use.

Other fields over the country, before East Texas found oil, were running on some kind of a part time schedule, supplying their proportional share of current market demand for crude.

The East Texans did not see —and some of them still do not want to see—why the industry at large, and their own state authorities, should try to prevail upon them, latecomers to the feast as they regarded themselves, to restrict the amount of oil they should take from their own field.

PRODUCTION in East Texas shot up rapidly to nearly 400,000 barrels a day, not enough, in actual barrels to upset an industry using about 2,500,000 barrels of crude every day; but enough to demoralize a delicately balanced relationship between supply and demand in other fields, which were already holding back part of their production to prevent a surplus of crude going on the market.

If East Texans could not get the posted price for crude paid by the purchasing companies they were willing to sell for less, and did. Companies buying oil in other fields could not operate for long, in today's competition, and pay more for their raw material than some of their competitors. So down came all crude prices in the Mid-Continent district to the present level

of 10 to 22 cents, depending on the gravity.

Just as a relatively few thousand barrels of oil too much, compared with the total the country is using, have brought about the present period of demoralization; so about the same volume of oil on the other side of the ledger will turn the scales and prices respond until they reach a point where the producing of oil can be carried on at a profit.

Another condition which may soon begin to make itself felt as an alleviating force in the situation, is the fact that development operations so far in East Texas have been carried on at a loss. The price which has been obtained for the oil has not paid for the cost of bringing it to the surface, taking the field as a whole.

NEW capital, which has poured into newly found oil fields in the past, has been hard to raise in East Texas. This, together with the low price for oil now prevailing, and the losses which have been encountered, will serve to slow down the rate of development in the future.

Those in East Texas who have opposed proration and orderly development so far, will carry their fight into the emergency session of the legislature now assembling. It is almost certain, however, that Gov. Sterling refrained from calling the session until he was convinced there was enough feeling through the state generally on behalf of such legislation that some regulatory measure would be passed.

Various suggestions have been made and it is too early yet to tell what will be done. It must be borne in mind, however, that the fight for orderly development has not been won when such legislation has been passed even as an emergency measure. Its opponents will take their fight to the courts, to delay the law becoming effective, if for no other reason.

California has had that experience. Two years ago the state passed what seemed a very reasonable and desirable conservation law. Those who opposed it for purely selfish reasons have tied the law up in litigation and there has never been a chance to see how giving a state actual control over the development of its oil fields would work out in practice.

The oil industry in California, aided by business leaders with foresight, has encountered much the same situation as the southwest has been struggling with—more crude oil than the market could absorb and the problem of apportioning what volume could be used with fairness among the various fields and operators.

The principal California oil companies about a month ago raised the price of crude, and the retail price of gasoline, to reasonable figures, which, if followed, would allow the oil companies to recover their stability and aid in the general business recovery on the Coast.

Then the oil companies, oil associations and other outside business organizations took advertising space, page size, in the daily newspapers to urge the public not to patronize the price cutting refiners and dealers. "Buy, as you would sell," they said, pointing out that allowing the oil industry on the coast, with its tremendous purchasing power and its large number of people employed, to operate under stable conditions would do much to aid in bringing back general prosperity.

A small minority of operators, selfishly shortsighted, are attacking even this program by telling the public that this is a move on the part of the larger oil companies to drive out the small operators and establish a monopoly.

The industry at large, over the past few years, has tackled the job of orderly development of producing fields, in the face of a surplus of crude, with a great degree of success. There are a few sore spots, East Texas principally. The oil state governments are now supporting the program of the established oil companies because present prices for crude mean a great loss in state revenue through royalties and production taxes and so on.

It is a struggle between several constructive forces and the business shortsightedness of a relatively few individuals.

Russia, and East Texas On N.P.A. Program

WASHINGTON, July 17.—Subjects of vital import to the oil industry will be discussed at the annual meeting of the National Petroleum Association, Hotel Traymore, Atlantic City, Sept. 16, 17 and 18.

The subjects, as announced recently by Fayette B. Dow, general counsel of the association are:

"Economics of the Oil Industry," "East Texas," "The Oil Situation in California," "Russia," "Developments in Aviation During the Past Year."

"Refineries Outside of the United States," "The Domestic Consumption of Lubricating Oils," "Changes in Engine Design in Relation to Lubrication Requirements," "Recent Developments in Petroleum Manufacture."

"The Anti-Trust Laws and American Business," "The Gasoline Tax Laws and Their Administration," "The Oil Industry—An Adventure or a Business?"

Three New Refineries For East Texas

TULSA, July 11.—Construction has been started on three new refineries in East Texas.

Bell Oil & Gas Co. is constructing a 10,000-barrel skimming plant near Longview, on the Illinois & Great Northern railroad. Southwestern Engineering Co. has the contract. A 6-inch pipeline from the Kilgore and Lathrop pools will supply the plant with crude from leases operated by the Danciger Oil & Refining Co.

A skimming plant of 1000 barrels capacity is being built at Kilgore by J. D. Wrather and associates. These interests recently completed a refinery of 3000 barrels capacity at Overton which is operating under the name of the Overton Refining Co.

Sinclair Refining Co. has started assembling equipment for a 2000-barrel skimming plant near Gladewater.

The Editors' Viewpoint

Bargains in Equipment

EQUIPMENT the marketing industry uses in the distribution of petroleum products is on the bargain counter today and some companies are quietly taking advantage of this fact, and supplanting obsolete equipment at their stations and bulk plants with that of the late improved types.

In so doing not only are those companies making a distinct saving at today's price scale for both materials and labor; but they are also putting their service stations and their marketing organizations into shape to engage, at their maximum strength, in the battle for business in the future.

Latest models in some lines of service station equipment, say the manufacturers, are selling today at 20 per cent less than a year ago, with the same quality materials, workmanship and construction going into the product. Gasoline dispensing equipment, tanks, fittings, and so on are at this bargain price level for the most part because of the low scale of prices for materials going into their manufacture. Improvement in the raw materials markets cannot help but bring higher prices for the finished product, say the equipment people.

The oil marketing company is in a different position today than the business man in many lines in that it need not be greatly at sea as to the volume of the market for petroleum products in the next year or so. Consumption of motor gasoline has held up consistently through the period of depression. For the first four months of this year, according to the tax inspection figures in the various states, consumption was a trifle greater than a year ago. The marketing company, on the average over the country, is safe in figuring on a better gasoline business in coming months than a year ago; and the extent to which the individual company will attract this business will depend largely on the service it offers the motoring public along with its products.

This could well be the day for replacing obsolete equipment, even though it is still serviceable, with modern fast dispensing types which the public demands at present. The individual motorist may have retrenched perhaps in his own manner of living. He may be driving a car of a 1929, or even 1928, model; when he would like to have a 1931 model. His home may not have the convenience of a stoker fired furnace, which he may desire.

However, when this same individual goes out to buy, with money in his pocket, he does not excuse inadequate service, based on today's standards, with the thought that the oil company cannot afford to put in modern equipment much as it might like to. The increasing struggle for business has led the public to expect more in the way of service today than ever before. Today's equipment market affords the oil marketing company an opportunity to bring their stations up to the present standard of service.

Nebraska Applies the Gag

IT HAS come at last. The Nebraska legislature is afraid the public will rise up against the size of the gasoline tax, so it has just enacted a law forbidding vendors of gasoline showing the amount of the tax when they post the price.

We hope that, when that law becomes effective Aug. 3, every oil man in Nebraska will post a sign with his price and this statement:

> "Your legislature does not want you, Mr. Taxpayer, to know how much gasoline tax you are paying.
>
> "Your legislature wants to keep this information from you so that presumably it can in the future increase the amount of that tax to unheard of size to the end that these politicians can make use of these funds to their own ends and purposes without any supervision from you.
>
> "Your legislature has enacted a law making it a misdemeanor for us to give you this information.
>
> "We know that this law is unconstitutional. There is nothing in the constitution of this state or country, nor can there be, which will keep the taxpayers from being informed as to what taxes they are paying. Your legislature cannot Sovietize this state. So we give you, Mr. Taxpayer, the information that is lawfully yours—your gasoline tax today is 4 cents per gallon."

If the Nebraska oil men do not want to include the tax in the particular sign that carries the posted price, then—and we say this without having a copy of the new law before us—there could not possibly be any law drawn that would forbid the giving of this information in a statement posted alongside the price sign.

At all events the oil industry of Nebraska should openly defy the legislature on this law and the whole industry of the country should stand behind the men in Nebraska. If all legislatures should enact such legislation and get away with it before the courts—which we think is absolutely impossible—legislatures would raise this tax to unheard of heights and spend the money in all directions.

It is time the American oil industry fought these politicians and nitwits who hold public office, on behalf of the American tax payer.

Indiana Standard Discontinues Lease And Loan of Equipment

CHICAGO, July 13

BEGINNING Aug. 1 Standard Oil Co. of Indiana will discontinue leasing and loaning to and installing for customers all gasoline dispensing equipment below and above ground.

The one exception is that outlets which have been supplied by other distributors' pumps may be replaced with other pumps similar in kind, style, age and condition or the replaced supplier's equipment may be bought. Detailed instructions are being sent out to district agents now.

The ban on installation of dispensing equipment does not apply to leased outlets under the company's authorized agency agreements. The leased stations, however, must be on privately owned property and equipped to serve cars with motor fuel when leased.

This policy will be continued, the company has notified its division and district managers, as long as competitive conditions permit. Managers have been instructed to leave nothing undone to make the new policy a success.

The class of customers covered in the new policy includes all dealers and resellers such as garages, automobile sales agencies, tire stores and curb pump operators, and consumers such as fleet owners, construction companies, bus and taxicab companies.

In the cases where equipment is bought from a previous supplier the company will pay a fair price, mutually agreed upon, it states. For underground equipment it will pay up to $100 for 500-gallon tanks with fittings and installations; up to $125 for 1000-gallon tanks and up to $150 for 2000-gallon tanks.

The company has set the same price basis for sale of its equipment to a competing distributor or a customer who might desire to buy the equipment. It will sell no new equipment to a customer or install new equipment even though the customer might be willing to pay for it.

The company will continue to supply lubricating oil equipment but will not supply any class of accounts such equipment as air compressors, air towers, floodlights, light posts, lighting equipment or supplies, power lifts, battery charging and tire equipment, driveways or material or labor in connection with the installation and/or maintenance of driveways, pump islands, or any other item of equipment not specifically listed in its instructions to managers.

The company will continue to paint pumps through which its products are dispensed and to paint out competitive advertising. It will not supply paint or labor for painting the inside or outside of buildings.

Concerning new accounts the instructions to managers say:

"It will be necessary for anyone contemplating the sale or use of gasoline to arrange for his or their own equipment and installation, through arrangements made direct with the vendor of equipment or installation service."

Sales of its used equipment shall be for cash at a fair market value consistent with replacement cost less depreciations. These minimum sale prices have been set: blind pump $15; visible pump $35, and meter pump $75.

Under the new policy if a dealer supplied with a blind or visible pump desires a new pump it will be necessary for him to make the replacement himself. He must also supply himself with any additional equipment he may desire.

A.P.I. Directors Accept Code as Revised

NEW YORK, July 13.—Directors of the American Petroleum Institute have approved by mail ballot the revised code of practices for the marketing of refined petroleum products as submitted by the Federal Trade Commission a month ago.

W. R. Boyd, Jr., executive vice-president of the institute, has notified the commission the revised code has been accepted by the industry.

Mid - Continent Petroleum Corp. has again signed the code, the institute announced July 11. The Mid-Continent withdrew its signature from the first code promulgated by the commission because of the practices of certain competitors in the middle western territory where the company has distribution.

North Carolina Questions 100% Outlet Plan

CLEVELAND, July 13.—Investigation of 100 per cent outlets for petroleum products will be made July 20 by Attorney General Dennis G. Brummitt of North Carolina in a hearing at Raleigh. About 45 oil marketers and major company marketing officers have been summoned to appear.

Variations in gasoline prices at points close together will figure in the state investigation but to a less degree, according to reports from Raleigh, than the 100 per cent outlet question.

Complaint has been lodged with the North Carolina attorney general that the 100 per cent outlet plan under which a dealer agrees not to handle the products of a company that is competing with his chief source of supply, violates the state anti-trust law.

A. McD. Gray Heads Gray Processes

NEWARK, N. J., July 13.—A. McD. Gray, brother of the late Thomas T. Gray at a meeting of the board of directors July 2, was unanimously elected president of The Gray Processes Corp. manufacturers of the Gray vapor phase treating process. Mr. Gray, who has been in the oil refining equipment business for the past 30 years, succeeds his brother who died of pneumonia April 27.

Texas Legislature in Emergency Session To Tackle Regulating Production

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, July 10

MEASURES designed to stabilize the Texas petroleum industry are being prepared and a special session of the legislature called by Governor Sterling will convene at Austin, July 14.

Efforts will be made to strengthen the state's conservation powers and make inforceable its regulations pertaining to the oil industry. For legislative consideration were:

(1)—Proposed methods for making the conservation law cover economic as well as physical waste. The present statute stipulates that only physical waste may be considered in dealing with oil and gas conservation.

(2)—The proposal as to whether or not the state can and should restrict the number of wells that may be drilled in an area as a conservation step.

(3)—How to overcome legal obstacles now permitting oil and gas producers to violate proration orders pending injunction case proceedings, which automatically stop penalties for excess withdrawals, regardless of the outcome of litigation.

(4)—The question as to whether new legislation shall simply strengthen railroad commission powers or create a new natural resource conservation agency, which is known to be favored by Governor Sterling.

(5)—Proposals for regulating pipeline takings and connections to wells.

The governor's call followed a crude price collapse in the southwest to lowest levels in 30 years and the admission generally that East Texas proration of production could not be accomplished under voluntary programs.

Schedules posted by crude oil purchasers brought the basic market to 10 cents a barrel flat in West Texas fields and 10 to 22 cents a barrel for Mid-Continent grades in Texas.

The few major company buyers posting East Texas prices withdrew early in the week, paying for their purchases hereafter on the "average of the field" as best determined by them.

East Texas producers were reported offering crude at the wells at five cents a barrel, the lowest level known anywhere in Texas since the Spindletop price debacle of 1901.

Humble Oil & Refining Co., which initiated present low schedules effective July 8, was advised by Lion Oil Refining Co. that it would not sell its Winkler county (West Texas) oil at 10 cents a barrel, but would store the production. Lion may be followed by other producers, who may not shut down their properties because of underground water conditions in fields of the Winkler type.

Many large royalty owners are unwilling to accept the 10-cent price, but the industry is in doubt as to what can be done about it unless storage is provided for payment "in kind," or the company provides storage on which it is entitled to a monthly charge.

Even before the last crude price reduction, Roeser & Pendleton, Inc., and the Continental Oil Co., shut in most of their Cook pool properties in Shackelford county, central west Texas, rather than dissipate their reserves on an unprofitable market. The Cook pool, however, has been one of the exceptionally handled developments where the policy now pursued was simplified as compared with many others. A total of 318 wells, averaging 1275 barrels together, were included.

IN EAST TEXAS, operators were notified by proration umpires that their allowable for each 20-acre producing unit under the railroad commission's order of July 2 totals 264 barrels daily. Leases containing 10 acres, or less, are called half units and allowed 132 barrels. For leases of less than 20 acres but more than 10 acres the full unit allowance applies.

As late as July 9, field umpires reported 29 East Texas producers violating the new proration order, which seeks to limit daily production there to 250,000 barrels daily through July and for two months thereafter, unless changed or modified.

Producers having no outlet for their crude are not considered to be proration violators.

East Texas Situation

PRODUCTION from the East Texas fields for the week ended July 8 averaged 380,533 barrels. There were 1166 completed wells, a gain of 72 from the previous week.

As of July 4 there were 532 drilling wells in the proved area, a loss of 42 from the check-up of June 27.

First reports, or operations not previously reported, totaled 57 for the week ended July 4, which was 25 less than in the preceding week.

There are now said to be approximately 175 wells in the East Texas field, owned by a large number of small tract operators, who have not as yet run a barrel of oil from their wells.

Arkansas Fuel Oil Co., of the Cities Service group, has filed the seccnd injunction suit to stop penalties from operation in violation of the July 2 prorating order. The first such suit filed was on behalf of E. L. Chapman, Fort Worth promoter—producer.

The Arkansas company claims the 20-acre unit plan, which dispenses with potentials and arbitrarily gives an "edge" property equal rating with a structurally "high" lease, sets up inequities of production.

Fred Upchurch, assistant attorney general, has held that approximately 20 injunction suits brought to suspend penalties under the May-June proration order are now of no value, since that order has been superceded.

Captain J. F. Lucey, chairman of an East Texas arbitration committee provided for under the operators' plan proposed ahead of the railroad commission's modified acreage order, has wired Chairman C. V. Terrell of the commission describing the new proration schedule as "exceptionally fair."

Captain Lucey said: "The small unit under the schedule has received special ccnsideration. It must be kept in mind that the small unit operator in the Kilgore and Joiner areas has been running oil for a considerable time. In many instances operations are paid for through sale of cil. The small concessions now made, and they are not great, are offset by the opportunity of obtaining connections for the 175 well owners who have not run any oil."

Captain Lucey sent out a call to producers and operators urging observance of the railroad commissicn's new proration order.

The East Texas Land, Lease and Royalty Owners Association, headed by Judge Charles L. Brachfield, of Henderson, as president and Carl Estes, of Tyler, as secretary, voted July 8 at Tyler for "a trial" of the new commission order.

In his call summcning the legislature into emergency session, the governor said "citizens from every section of this state as well as a great number of the members of the legislature, are insisting that the legislature be convened."

The first move to this end from within the industry came early in June, when a statewide organizatien of substantial independent operators and royalty owners formed the Texas Oil Emergency Committee at Dallas, under chairmanship of President Warren L. Todd, of Columbia Oil & Gas Co. The committee at once asked that a special sessicn be called.

Chambers of Commerce at Eastland, Fort Worth and Wichita Falls added their pleas and later the San Antonio Chamber of Commerce reversed its earlier stand against special legislation.

Representative East Texas landowners, led by Col. J. Lewis Thompson, cf Kilgore, John Alford, of Henderson, Roy H. Laird, of Kilgore, Walter R. Nicholson, of Longview, Carl B. Everett, of Gladewater, and Walter Tucker, cf Overton, have formed a permanent organization seeking preservation of East Texas resources and the offsetting of damaging leadership to the dangers of which the region appears now to be awakening. Their organizatien, with Colonel Thompson as president, is known as the East Texas Home Owners Association.

Frank P. Zoch, of San Antonio, Independent operator and vice chairman of the emergency committee, described Governor Sterling's call as "the real beginning cf the salvation of the oil industry" in the state.

Proration Opponents to Carry Their Fight to Austin

TYLER, July 11

THOSE individuals who have opposed proration in East Texas will continue their fight in the extraordinary session of the Texas legislature, called by Governor Sterling to meet July 14. This was indicated July 7 at a mass meeting of the East Texas Lease, Land and Royalty Owners' Association, held in Tyler. About 500 attended.

A principal purpose of the meeting was to disclaim responsibility for the present order of the Texas railroad commission. Several speakers explained the proration order now in force is not the Cranfill plan, proposed by certain operators and others three weeks ago and submitted to the commission.

Throughout the speechmaking the note was emphasized that "we should respect the orders of the commission and give this plan a trial—but, **IF IT S H O U L D FAIL** — then we should go back and ask the commission to issue an order based upon the Cranfill plan."

The meeting was called to order by Carl L. Estes, Tyler editor who has crusaded against proration in all forms except the Cranfill plan. He introduced Judge Charles L. Brachfield, president of the association. Later in the evening Estes said that he had acted throughout under the direction of Judge Brachfield—that he had merely been a mouthpiece in the fight.

Judge Brachfield said the order of the commission should be respected, but that it is unfair. Every operator in the field should be given an equal voice, he said, no matter what size his lease, and the present order does not so provide. "The time is coming when the Cranfill plan will have to be tried," he asserted.

He announced himself as being in opposition to legislation that will confer additional power on the state to control production.

Capt. J. F. Lucey, who has been active in the attempt to inaugurate the Cranfill plan,

reviewed the history of that plan. It was the intention, he said, to get the Cranfill plan to working, with its allowance of 250,000 barrels a day, get a better price, then go back to the commission about the first of August and ask for an increase in the allowable production to 300,000 or 350,000 barrels per day, "or whatever is fair." He said that he believed the market could at this time absorb 300,000 barrels daily without working to the disadvantage of anyone.

Capt. Lucey said that emphasis should now be placed upon that part of the railroad commission's order which calls for giving connections to the wells now without outlet. He placed the number at 175. Under the order the umpire is to determine which pipeline is in best position to serve any well that is not connected, and the pipelines are ordered to make the connections the umpire designates.

A considerable point was made of this provision by the speakers in the meeting and a resolution was adopted which said that, if all wells not connected were not given the relief ordered by the night of July 11, the commission would be asked to hold another hearing at once and substitute the Cranfill plan for the one now in force.

Tom E. Cranfill, independent operator and president of the Independent Petroleum Association of Texas, wanted it understood that he had nothing to do with the present plan. He said he would follow it and urged others to do the same, but, he said, "they can't lay that child on my doorstep and call it the Cranfill baby." In response to a question from the audience as to who wrote the order, he said he thought he could "see the fine, Italian hand of Hines Baker in it." Mr. Baker is attorney for the Humble Oil & Refining Co.

"Let them call their special session," said Mr. Cranfill. "We'll meet 'em at Phillipi. And when we come away, there'll be weeping and wailing on the banks of the Buffalo Bayou." (Reference is to Houston, where Humble's general offices are located.)

He paid tribute to Underwood Nazro, executive vice-president of the Gulf Production Co., saying that Mr. Nazro had tried to help in getting the Cranfill plan established and had lived up to every agreement he had made. "But," he shouted, "I defy you to show me one single thing Bill Farish has done to help relieve the situation."

A hint of what the Cranfill, et al, forces have in mind came when Mr. Cranfill said that it might be that "some inquiring mind" might raise the question in this legislature of how the large companies have been conforming to the anti-trust laws of the state. In other quarters it is asserted that this may turn out to be a prominent issue in the session.

Fred Upchurch, assistant attorney general, spoke briefly. He promises the audience that, if pipeline companies refuse to make connections to wells when directed to, "there will at least be some suits filed."

Several members of the legislature were present and were introduced.

Tunnel 175 Feet to Reach Casing Under Burning Well

WITH flames spreading over too great an area to use explosive, the tunnel method is being employed to put out the fire at the Bell, Grady & Stumpff well west of Kilgore, in East Texas. The fire started June 23. The Gulf and Shell companies, owners of offsetting leases, are in charge of the work.

The tunnel, shown in the foreground of the picture, was started 175 feet from the well and will reach the casing 20 feet below the surface. It is planned to drill through the pipe, "bleed off" oil from the gusher and carry it away by pipeline through the tunnel to a safe distance. In this way it is hoped to reduce the size of the flame sufficiently to enable the use of steam to smother it.

The tunnel is six feet high by eight feet wide and timbered all the way. A compressor supplies air to the shaft and aids in keeping the temperature down so men can work. A winch line on a tractor hauls out the dirt.

500,000 Barrels Outlet for East Texas Within Two Months

HOUSTON, July 11

ADDITION of 10-inch pipeline systems announced by the Shell Pipeline Corp. and the Atlantic Pipeline Co. will give East Texas upwards of 500,000 barrels daily outlet for its production. The new projects will probably be completed within the next two months.

The Shell company announced it would build 190 miles of line from the Sabine Uplift region, in eastern Texas, to its Houston Ship Channel refinery, to carry from 30,000 to 40,000 barrels.

The Atlantic company will build 180 miles from East Texas to its Atreco terminals in the Beaumont, Texas, district, for crude to be shipped by tanker to its refining plants on the east coast. The line will have a capacity of 30,000 barrels daily.

Five other companies expect to complete by early August the pipelines into East Texas they are building.

Sinclair Texas Pipe Line Co.'s 12-inch line from East Texas to connection with the Pure Oil Pipe Line Co. of Texas at Teague, in the Mexia-Powell region, expects to run oil within 10 days. It is 85 miles long, and has maximum capacity of 60,000 barrels daily.

Magnolia Petroleum Co. expects to operate by July 25 its 100-mile, 12-inch line from East Texas to Corsicana, rated at 50,000 barrels maximum daily. It is already operating a 40,000-barrel capacity lateral connecting East Texas properties with an older Arkansas-Louisiana trunk system to the Gulf Coast, in the Beaumont district.

Sun Pipe Line Co., and the Yount-Lee Pipe Line Co., jointly constructing a 200-mile, 10-inch system from the Lathrop area, in Gregg county, to Beaumont terminals, expect to test out their facilities later in July. Capacity will be approximately 40,000 barrels daily.

Humble Pipe Line Co., which operates a system southward to Boggy Creek connection with a lateral hooking up with its Mexia-Powell facilities, also moves East Texas oil to Louisiana boundary connection with the Standard Pipe Line Co., Inc., subsidiary of the Standard Oil Co. of Louisiana.

Recent looping of the Louisiana line brought its capacity to approximately 50,000 barrels daily, considerable space in the system, however, being used for deliveries from the Van field, of Van Zandt county, for the Louisiana Standard. Capacity of the Boggy Creek lateral approximates 20,000 barrels daily.

Liberty Pipe Line Co., a short system owned by the Mills Bennett interests of Houston, is being completed from the Kilgore area of East Texas to hook up with the Pure-Van Pipe Line's Co.'s line from the Van field to Smiths Bluff. Contract shipments will be handled.

More Than 100 Wells in East Texas Without Market for Crude

TYLER, Tex., July 14

ONE hundred and sixteen wells, as of July 8, awaited market outlet in East Texas.

Most are the properties of small operators, although several belong to substantial companies that have no pipelines in the district. A number of the "distress" wells are uncertain of getting connections under any condition, for they are doubtful risks to a pipeline-purchasing company. This class are located on acreage whose ownership is in dispute; litigation is actually in progress or threatened.

East Texas titles in many cases are full of holes. Since the news of the oil development spread over the country, missing heirs, or people who think they are heirs or otherwise have some claim to title, have been arriving every day, looking the situation over, and if the land they think they have claim to is well located, emitting a loud squawk and beating it to the nearest lawyer willing to work on a contingent basis.

The whole situation in East Texas daily grows more desperate. Unremunerative crude oil contracts, uncertainty as to volume sold from day to day from the wells that were "poor boyed" down on small tracts, failure of many royalty owners to get any return as yet—all these contrive to bring a definite unrest and dissatisfaction in the community.

Drilling continues to decline. Price, plus uncertainty of being able to sell oil, is responsible for that. It is increasingly difficult to promote a well out of future oil payments. The country is full of that kind of paper and big bargains are offered.

There are a few indications that substantial capital will enter the field to wipe out some of the uneconomic element. One encounters in Tyler, Longview and Henderson certain persons who are in the oil business elsewhere but who have not played East Texas. Some of them are from the east. They usually profess to be just "looking around." One, a bit franker than some others, said there was a definite point to his visit.

"I believe that the time is about here when properties can be bought on a basis that will be remunerative later on," he said. "If the bargains are really here, with real management and a willingness to realize the profit slowly, it is a good place to make an investment. Of course, there must be the disposition to conform to the control that is established and not try to amortize the investment in a hurry."

Every such investor that enters the field is a constructive force. The time appears to be ripe for entrance of substantial operators who view this district as something other than a place to make a quick clean-up. That it is not that has been amply proved.

Mid-Continent Producers Plan Shutdown To Force Crude Prices Upwards

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, July 11 MID-CONTINENT operators, immediately after the latest low-price record was established this week, began planning to use the chief weapon at their command—shutdown of production.

First attack was made in Oklahoma City field. Several companies already have shut in their wells; others will join in if it can be made 100 per cent effective. A general meeting of operators held July 10 petitioned the governor and the corporation commission to use any method they have to compel the closing of wells.

In West Texas, where a 10-cent flat posting was made July 8 by Humble Oil & Refining Co., the movement was started to withhold crude oil from the market. Lion Oil & Refining Co. cut off the 5600 barrels daily it was selling to Humble. Mid-Kansas Oil & Gas Co took away 6600 barrels it had been selling to Shell Petroleum Corp., which set a price of six cents per barrel, and Simms Petroleum Co. cut off 3000 barrels to the same company. The latter two accounts were Yates pool production. The state of Texas refused to accept six cents for its royalty oil and so notified the Shell.

The price reduction movement immediately spread to Oklahoma and Kansas. Sinclair Refining Co. was first, posting a price of 10 cents for oil below 29°, increasing one cent for each additional degree, with top price 22 cents for 40° and above.

By the close of the week every large purchaser had met the new postings, with the exception of the Gypsy Oil Co. and Magnolia Petroleum Co. Some smaller ones announced they would continue on the old schedule. These included National Refining Co., Vickers Petroleum Co., Kanotex Refining Co. and Derby Oil Co.

The price has fallen to a point where it is not necessary any longer to discuss the possibilities for profit to the producer. The only question now is what to do about it.

Several plans immediately were born. Certain politicians rushed into print with grandiose ideas, as usual. The only tenable program upon which oil producers agree is that of taking production off the market.

Peculiarly enough, with a large "potential" overproduction, crude oil in the Mid-Continent is tight and will be increasingly so on this market. Any appreciable amount withheld from the channels of trade will force a price increase. Gasoline stocks in the Mid-Continent have been going down and down. Current demand is such that crude cannot be held off the market without forcing a corresponding reduction in refining operations and this at a time when the trade is taking the present output. As for crude oil in storage, it is unlikely to be drawn upon much at this low market, as it was stored at a price so greatly above that which now prevails.

First large-scale attempt to shut in production came in Oklahoma City. The day after the reduction in price was made, Anderson-Prichard Oil Corp. shut in all its production, as did Denver Producing & Refining Co. and Plains Petroleum. Later Heenan & Co., Shaffer et al, Slick-Urschell et al, Don Leon Oil Co. and Acme Petroleum Co. shut in.

The meeting the 10th was specifically to consider an indefinite shutdown of all producing wells in the field. It was attended by more than 200 persons, the group including many royalty owners. W. N. Stokes, of the T. B. Slick Estate interests, was chosen chairman.

After extended discussion 73 voted for the shutdown resolutions, three voted against and 26 passed. Those who voted in opposition were Sinclair Oil & Gas Co., Champlin Refining Co. and Wilcox Oil & Gas Co.

Several large operators, including Indian Territory Illuminating Oil Co., Wirt Franklin Petroleum Corp. and Coline Oil

25,000 Barrels Shut-in At Oklahoma City

(By Telegraph)

TULSA, July 14.—Allowable production amounting to between 25,000 and 30,000 barrels in the Oklahoma City field had been shut in by July 14. It is impossible thus early to ascertain the amount of production elsewhere in Oklahoma and in Kansas shut in because of low prices for oil.

Gypsy Oil Co. (Gulf) July 13 met the new low price schedule. In Oklahoma, Magnolia Petroleum Co., Phillips Petroleum Co., and Bell Oil & Gas Co. had not met the new low price. Magnolia was still paying its flat price and the others were paying the old schedule of 25 to 37 cents a barrel.

The old schedule is also paid in Kansas by Derby Oil & Refining Co., Vickers Petroleum Co., Kanotex Refining Co., Eldorado Refining Co., Phillips Petroleum Co., National Refining Co., and White Eagle Oil Corp.

The Oklahoma Corporation Commission has not yet acted on the petition to shut in Oklahoma City wells.

Co., did not vote. L. E. Phillips, executive of the Phillips Petroleum Co., announced his company as being in favor of shutdown, provided it was made 100 per cent effective.

The difficulty in the way of getting a 100 per cent approval lies partly in the contracts which some producers have for sale of their oil. They would be relieved of these only by a state order shutting down the field. The state corporation commission appears to be reluctant to take that step, as its position has been that it issues proration orders to prevent waste and is not concerned with price. As no waste is occurring, except in an economic sense, the commission is hard put to find the basis for a shutdown order.

One of the resolutions adopted contains the agreement of those who voted for it to shut in all wells in the field "until the price . . . . . advances to a point commensurate with the cost of production, or, at least, at such a price as would be universally conceded to be fair and reasonable, not less than $1 per barrel."

A second resolution, reciting the sense of the first one, recommends that the governors of Kansas, Texas, Arkansas and New Mexico "take such steps as they deem wise, proper and expedient towards securing and enforcing the indefinite cessation or pause in the production of crude oil within the boundaries of their respective states until such time as the price advances to the above named point."

PURSUANT to these resolutions, a petition was drafted to Governor Murray, of Oklahoma, and the corporation commission, asking them to take such steps as they thought best to bring about a cessation of production in the state until the price advances to a point where oil can be produced without economic waste and a fair and reasonable price obtained.

Extreme measures are being urged upon the governor. Among them is the suggestion that he issue an executive order shutting down all fields in the state and using the militia to enforce the order. That is a step that he is unlikely to take, as it would be difficult to defend.

Another course, which is more feasible, is that he refuse to accept payment for the state's royalty oil in those pools where the state owns land, including Oklahoma City; that he refuse to permit the state's oil to be produced on the ground that it is subject to deterioration and loss in value above ground; that as the state's share is part of a common source of supply and subject to drainage, no other production be allowed in the common pool so long as the state withholds its production.

In Kansas, a meeting of operators held the 11th voted in favor of shutting in production. Thurman Hill, member of the public service commission, told the meeting that, if it would agree on a shutdown, the big companies would then be given the opportunity to show their sincerity in their repeated statements as to their solicitude for the small operators. If there was not then unanimity in shutting in production, the commission, acting under the new proration law of Kansas, would issue an order on the subject and would enforce it with all the local means at its disposal.

HE ALSO urged that President Hoover be implored to call a special session of Congress to deal with the oil problem, specifically to impose a tariff or an embargo on imports.

That the Oklahoma City field would make a big dent in the current supply if the shutdown were to attain large proportions is shown by the producing record of the past few days. By days, it was as follows:

Date	Wells Producing	Barrels
July 4	103	219,497
July 5	71	116,263
July 6	90	227,546
July 7	149	386,745
July 8	135	284,253
July 9	141	273,543

The July 7 production was a new high for the field. Largest producers in that 24-hour period were Phillips Petroleum Co., with 100,182 barrels from 23 wells; Slick, Urschell et al, with 47,004 from 17 wells; Indian Territory Illuminating Oil Co., 54,398 barrels from 27 wells and Wirt Franklin Petroleum Corp., 42,708 barrels from 15 wells.

That the production is being run is shown by the figures on the period July 1-5, inclusive. Production was 1,112,369 and pipeline runs were 1,048,589 barrels for the same period.

Working stocks in the field as of June 27 were only 636,347 barrels.

A new high in pipeline runs was made in the 24-hour period ended July 11 at 7 a.m. Total runs were 263,457 barrels. Sinclair-Texas Pipe Line Co. ran 63,040 barrels; Stanolind Pipe Line Co., 57,288 barrels; Empire Pipe Line Co., 52,498 barrels. These were the big runs, the rest varying from 600 to 20,000 barrels per company.

Market Demand May be Snag in Texas Program

AUSTIN, July 13.—On the eve of the opening of the special session of the legislature to consider bills regulating of oil production, it became apparent there would be a divergence of view as to what should be taken as market demand for crude in estimating allowable production.

Heretofore, major companies purchasing crude oil in the state have given their requirements from the various fields in the state for definite periods, which requirements have been the basis of market demand.

East Texas operators who have opposed proration take the position that market demand for crude oil at 10 cents a barrel may be double or triple the demand as estimated under other conditions. This group takes the position that providing stringent penalties for waste will automatically regulate market demand.

Late Crude Price Changes

ASHLAND, Ky.—On July 14 Ashland Refining Co. reduced Somerset crude in Cumberland Pipe Line Co. lines 15 cents, to new price of $0.40 per barrel.

18 Companies Taken Into Consolidation Of Quaker State Oil Interests

By Roger B. Stafford

N. P. N. STAFF WRITER

OIL CITY, Pa., July 14

EIGHTEEN companies operating in the Pennsylvania grade crude oil field, or closely connected with companies in that field, are involved in a merger through the recently organized Quaker State Oil Refining Corp. All the companies have been affiliated through interlocking ownership and directorates. The list of companies includes:

Appaline Oil Co., Clarksburg, W. Va., jobbing company in West Virginia and western Maryland.

Carteret Oil & Refining Co., Carteret, N. J., barrelling and exporting organization.

Emlenton Refining Co., Emlenton, Pa., refiner of Pennsylvania grade crude.

Enterprise Oil Co., Buffalo, compounder of automotive oils and greases.

Gallagher Bros., West Apollo, Pa., jobber.

James D. Berry, Oil City, Pa., vice-president of Quaker State Oil Refining Corp.

H. J. Crawford, Emlenton, Pa., president of the new Quaker State Oil Refining Corp.

Independent Refining Co., Oil City, Pa., refiner of Pennsylvania crude.

Iron City Oil Corp., Pittsburgh, jobber of oils and gasoline.

James B. Berry Sons' Co. of Oil City, Pa., carload marketer, with branches in New York, London and Hamburg.

James B. Berry Sons' Co. of Illinois, Chicago, carload marketer with 2000-barrel cold test lube and asphalt refinery at Waterloo, Ark.

McKean County Refining Co., Bradford, Pa., refiner of Bradford grade Pennsylvania crude.

Ohio Valley Refining Co., St. Marys, W. Va., refiner of Pennsylvania grade crude.

Quaker State Oil Refining Co., Oil City, Pa., producer and marketer of Quaker State brand motor oils.

Quaker State Oil Refining Co. of California, Los Angeles, distributor of Quaker State oils on the Pacific coast.

Ivory Oil Co., Chicago, jobber of oils and gasoline.

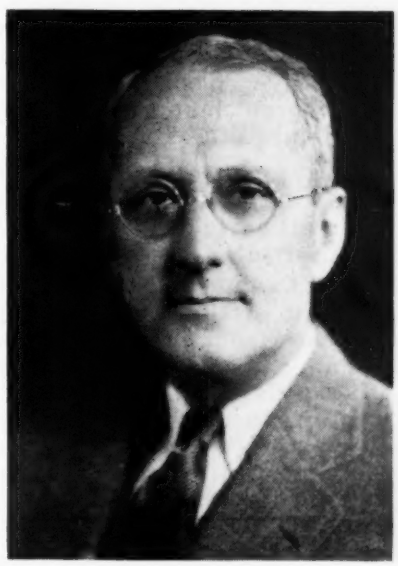
Lake Erie Lubricants, Inc., Cleveland, Quaker State distributor.

Sterling Oil Co. of Pennsylvania, Emlenton, Pa., jobber of gasoline and motor oils with chain of bulk and service stations in western Pennsylvania.

Sterling Oil Corp., Buffalo, jobber of lubricants including Quaker State.

Sterling Oil Co. of West Virginia, St. Marys, W. Va., jobber of oils and gasoline service station operator in West Virginia, and national marketer of Sterling brand Pennsylvania grade motor oils.

Assets of the consolidated company are said to exceed $20,000,000. The new Quaker State Oil Refining Corp. will have outstanding 900,000 shares of no par value. Its shares will be exchanged for shares of the various other companies in the merger. No new financing is



Samuel Messer, Oil City, Pa., vice-president of Quaker State Oil Refining Corp.

contemplated at this time. The new company is virtually a closed corporation.

The four refineries operating on Pennsylvania grade crude oil have a rated daily charging capacity of 8000 barrels. The Ohio Valley and Emlenton plants a short time ago began operations of late type Dubbs cracking units with a total daily charging capacity of up to 2000 barrels.

The Independent plant is participating in the large Dubbs plant at Oil City which is jointly owned by it, the Pennzoil Co., Continental Refining Co., and Wolverine-Empire Refining Co. Probably within the next year a cracking unit or reformer plant will be built at the McKean County refinery which is described as one of the most modern lubricating oil plants in the Pennsylvania grade field.

Details of the operating organization of the consolidated company are being worked out. For the present refineries will operate on their present basis. Tank car sales of unbranded products will be handled by the Berry organization in the United States and abroad. Quaker State motor oils and greases will be marketed from the Oil City headquarters as before and Sterling oils from St. Marys.

The Quaker State greases, made by the Enterprise company, which also has Enterprise and Duplex brands, are a recent entry in the heavy lubricant field. They were introduced to give Quaker State a complete line of automotive lubricants and place the name on the same competitive basis as several other large manufacturers of automobile lubes.

Quaker State announced it has more than 75,000 retail outlets in all parts of the world for its motor oils.

H. J. Crawford, Emlenton, is president of the new company. He comes from one of the older oil and gas operating families in Pennsylvania. Besides being an oil producer and refiner, Mr. Crawford is interested in numerous western Pennsylvania industries. He is a director and officer of many banks of the oil region and is president of two Oil City banks.

Vice-presidents of Quaker State are Samuel Messer and James D. Berry. Mr. Messer has been an officer of all four refineries of the organization in the Pennsylvania field. He entered the oil business with Emlenton Refining Co. when he was 18 years old. He had been closely associated with the activities of the Pennsylvania refiners in the National Petroleum Association, of which he is a past president. The Pennsylvania Grade Crude Oil Association is the outgrowth of an idea he had for the national merchandising of Pennsylvania grade oils.

Mr. Berry is the son of the founder of the present James B. Berry Sons' Co., a business that is as old as the Standard Oil Co. In fact, a large part of the early business of the elder Berry was to buy some of the requirements of Standard Oil which it did not refine itself.

W. R. Reitz, Oil City, is secretary and assistant treasurer of the new company. Charles D. Berry is treasurer and assistant secretary. Both have been associated with the Quaker State and Berry organizations.

In addition to the officers, directors are: H. H. Lowrie and E. P. Theobold, Oil City; G. B. Hunter, Emlenton; J. P. Flynn, Sistersville, W. Va.; P. J. Bayer, Erie, Pa., and T. B. Gregory, Pittsburgh.

At a later date producing properties owned by Quaker State stockholders may be turned into the company and other properties acquired, so that the organization will have part of its crude oil requirements. This would make the Quaker State organization an integrated company. However, its principal business would continue to be the refining of motor oils. Its retail business would probably be only extensive enough to provide an outlet for its light oil production.

Maljamar To Build Plant

HOUSTON, July 11.—Announcement comes from Actesia N. M., that the Maljamar Oil & Gas Co., which first discovered oil production in northwestern Lea county, plans construction of a 1500-barrel refinery at Artesia. An affiliated corporation known as the Malco Refineries Co. will operate the plant.

To Organize East Texas A. P. I. Chapter

DALLAS, July 11.—Organization of an American Petroleum Institute chapter in the East Texas oil fields will be carried out at a meeting July 15, in Longview. The purpose of such a chapter will be to provide a forum for discussion of problems of development, production and transportation.

Emphasis will be placed on safety methods and fire prevention at the start. It is well recognized that many inexperienced operators are in this district and that unless there is organization to reduce the hazards, accidents will be numerous. Especially is the problem of keeping down fires a serious one.

The organization committee for this meeting consists of Blaine Johnston, Simms Oil Co., chairman; E. Stanley Durward, Shell Petroleum Corp.; W. H. Meier, Atlantic Oil Producing Co. and John Ritter, Sun Oil Co.

Building Work at Pure Plants in Progress

TULSA, July 11.—The Pure Oil Co. is doing considerable construction work at its various refineries and in its producing fields.

At the Marcus Hook refinery an absorption plant is being constructed, and changes made in the gas recovery plant. The absorption plant will have a capacity of 13,000,000 cubic feet of wet gas a day. The company already has absorption plants at Heath and Toledo, in Ohio, and also is constructing one at Smiths Bluff.

Several changes are being made in the Gyro process units at the Marcus Hook and Cabin Creek, W. Va., refineries.

An additional compressor is being installed in the gas recovery plant at Heath.

Several changes have been made in the re-run plant at the Muskogee refinery.

Pumps and engines are being installed on the barges which were purchased recently for service on the Kanawha and

Ohio rivers. These barges have a capacity of 60,000 gallons each and will be operated with the new tow boat "D. E. Sullivan."

Two 55,000-barrel crude oil storage tanks are being erected at Rusk, Tex.

1250-Barrel Dubbs Unit At Kendall Plant

CHICAGO, July 13.—The recently announced installation of a cracking unit which the Kendall Refining Co., Bradford, Pa., will erect, is a Dubbs unit of 1250 barrels daily charging capacity.

The Kendall was the second refiner of Pennsylvania crude to install the Dubbs process, building two units in 1924.

The first Pennsylvania refiner to install this process was the Vulcan Oil Refining Co., since acquired by the Freedom Oil Works Co.

Three new Dubbs units have recently gone into operation at the plants of the Emlenton Refining Co., Emlenton, Pa., the Ohio Valley Refining Co., St. Marys, W. Va., and The Pennzoil Co., Oil City, Pa.

Petroleum Chemists Study Progress in Russia

NEW YORK, July 13.—Oil chemists in this country are studying the accelerated progress in Russia in petroleum research due to the stress put on oil by Stalin in his newly announced economic policy according to Dr. C. D. Lowry, Jr., Universal Oil Products Co., Chicago, and secretary of the Petroleum Division of the American Chemical Society. The society will hold its 82nd meeting in Buffalo, Aug. 30 to Sept. 4.

The petroleum division is circulating among its members important articles in petroleum technology published in Russian, the number of which has increased lately due to the emphasis placed upon oil in the Soviet five-year plan.

Continental Completing Improvements At Ponca City Refinery

PONCA CITY, July 11 CONTINENTAL OIL CO. is completing three important construction projects at its Ponca City Refinery. They are the installation of a combination vapor recovery and debutanizing plant, revamping its two cross cracking plants and the erection of a new distillation unit for handling pressed wax distillate.

The new vapor recovery plant will be used to stabilize 9000 barrels of pressure distillate from the Dubbs cracking units daily, 6000 barrels of cracked gasoline from the Cross cracking units and 1000 barrels of natural gasoline brought in from outside daily for blending with straight run gasoline. In addition it will recover the gasoline content from 7,500,000 cubic feet of refinery gas and natural gas brought from wells in the South Ponca field, a few miles from the plant.

The Dubbs pressure distillate and Cross cracked gasoline are debutanized in separate columns, the finished products being stripped down to 0.1 per cent propane content. The Cross gasoline is debutanized down to an initial boiling point of 123 to 125 F.

The overhead product is run to the absorber along with the natural and refinery gas and the residue goes into the plant fuel gas system. Rich oil from this absorber is stripped in a stream still and the overhead is stabilized to take off all methane, ethane and virtually all the propane. It is then run to pressure storage for blending with motor gasoline.

Changes in the Cross units have included complete rebuilding of the furnaces so that the capacity can be run up from 800 to 1400 barrels per day and the yield from 47 per cent to more than 60 per cent.

Bubble towers have been changed by removing coils at the top and adding two new trays. Condensers have been changed and enlarged and new after-coolers added.

An interesting feature of the units is the new hot oil pumping system. Each unit has been equipped with a new nine-stage Pacific centrifugal pump designed to deliver oil under 1250 pounds pressure at 950 F. The plan is to operate at somewhat lower temperatures than those guaranteed by the manufacturer.

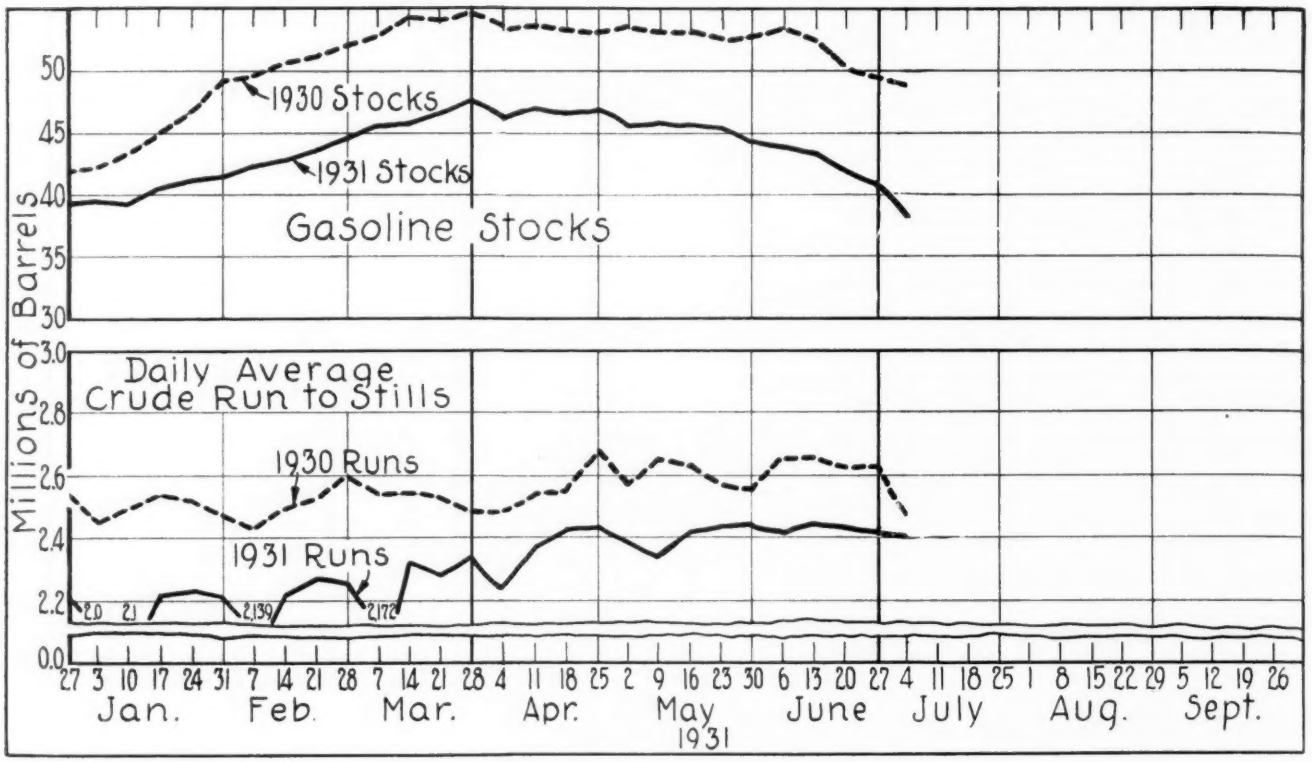
One pump will operate against a back pressure of 18 pounds and the other against a vacuum of 9 inches. One is to be driven by a condensing and one a non-condensing turbine. The turbines are rated at 350 horsepower and will operate on 150-pound steam.

The new pumps have a water-cooled base and are equipped with a special pumping arrangement for delivering a large supply of lubricating oil to all bearings. A separate pump supplies oil until the big centrifugal is operating at full speed when this pump cuts out and the oil circulation is supplied by the power of the big pump itself. Trials have shown the lubricating oil circulated about the bearings leaves the system at about 90 F. There is virtually no vibration of the pump in operation.

The new Alco pressed distillate unit will handle 3000 barrels of that oil daily separating it into four streams. A gas oil cut will be taken off the top of the fractionating column, two neutral cuts will be taken from the side ranging from 70 to 180 viscosity at 100 F. Bottoms from the tower will range from 180 to 280 viscosity. The unit will be operated for a 220 viscosity neutral.

Laboratories at the refinery recently have been enlarged by the addition of new equipment for testing pressure resisting qualities of various lubricants and a new high speed dynamometer is capable of being operated at 5000 revolutions per minute and thus can be used for ultra high speed motor testing.

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



Gasoline Stocks Shrink Despite Larger Output

By Telegraph

NEW YORK, July 14

DRAIN on the nation's finished gasoline stocks continued in the week ended July 11. The draft at plants having 94.7 per cent of the operating capacity of the country was 1,356,000 barrels—not so much as in the preceding week but still a sizable volume.

Since May 30 gasoline stocks at plants that report their operating statistics to the American Petroleum Institute have been lowered 6,453,000 barrels, or 14.4 per cent of the motor fuel held at refineries at the end of May.

Last week's draft was in spite of an increase of 79,300 barrels in the daily average charge of crude oil to stocks.

Refiners on the East Coast, Louisiana Gulf Coast, Rocky Mountain area and in the Mid-Continent speeded up their operations last week. California, Texas Gulf Coastal and Central States plants curtailed their runs 10,000 or more barrels daily average. Appalachian refiners reduced their runs 2500 barrels daily average.

Daily average production of cracked gasoline was increased almost 20,000 barrels.

Stocks of fuel and gas oil rose 1,269,000 barrels at reporting plants, which operated at 65.9 per cent of their rated capacities last week, compared with 63.8 per cent the week before.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels) Gasoline July 11	Gasoline July 4	Gas & Fuel Oil July 11	Gas & Fuel Oil July 4	Cracked Gasoline Production % of Total Capacity Reporting July 11	Daily Av. Production (Barrels) Week Ended July 11	Daily Av. Production (Barrels) Week Ended July 4
		July 11	July 4	July 11	July 4							
East Coast	100.0	487,300	459,300	76.9	72.5	6,764	7,134	9,870	9,587	90.4	90,100	86,400
Appalachian	91.8	83,900	86,400	61.1	62.9	1,374	1,479	1,250	1,202	95.8	22,700	23,600
Ind., Ill., Ky.	96.6	297,700	307,600	70.6	73.0	5,852	6,094	3,801	3,804	92.7	84,200	79,200
Okla., Kans., Mo.	89.6	312,300	273,900	71.8	62.9	2,755	2,876	5,016	4,834	92.3	57,300	50,600
Texas	91.3	516,000	523,100	67.4	68.3	7,156	7,262	10,704	10,405	96.8	119,900	116,700
La., Ark.	98.9	195,100	165,900	84.6	72.0	1,343	1,360	2,703	2,745	100.0	29,700	27,700
Rocky Mountain	89.3	53,900	42,400	37.9	29.8	1,753	1,766	849	853	95.5	15,000	16,700
California	96.5	457,800	466,100	52.0	53.0	11,345	11,727	98,443	97,937	100.0	41,100	40,400
Total	94.7	2,404,000	2,324,700	65.9	63.8	38,342	39,698	132,636	131,367	94.9	460,000	441,300
Texas (Gulf Coast)	99.8	381,600	418,700	71.8	78.8	6,029	6,118	7,642	7,401	98.6	91,600	91,000
La. (Gulf Coast)	100.0	127,700	114,100	86.6	77.4	1,229	1,266	1,755	1,839	100.0	22,000	19,300

Los Angeles Business Urges Public To Support Gasoline Prices

By Jack N. Westsmith

N. P. N. STAFF WRITER

LOS ANGELES, July 11

THE big California oil companies, fighting to maintain the recent advances in gasoline price schedules by appealing to the public not to buy at cut prices, and thus help the oil industry to recover, were forced to give some ground before the cut-price refiner and distributor.

They were backed up, however, by an organization of Los Angeles business men, who also used full page newspaper space in advertising to tell the public;

"Business has just one sound principle, Buy—as you would Sell."

The newspaper advertising signed by a committee of Los Angeles business men, of which Victor H. Rossetti, president of the Farmers and Merchants National Bank of Los Angeles is chairman, features a picture of Calvin Coolidge and states that the first requisite to recovery is the maintenance of reasonable and stable prices for fabricated products. The text goes on:

"If you would pay less than a fair price for services or commodities, you must expect less return for your services or commodities.

"There is no rule in the world that will permit—'I will pay less and get more.'

"If the oil business, the key industry of southern California, is prostrated by cut prices, leading to a demoralization that would extend throughout our commercial structure, and to the release of many people in and out of the oil industry, a great many persons in this community will 'leave town,' as far as commercial and social life is concerned.

"You ask, 'If they do, well what?'

"There would be more room on the highways. You could drive in perfect ease and safety. You would not have to stand in line at a movie. There would be room on the beach to stretch out. You wouldn't have to wait on the first tee. You could get a front seat at the ball game.

"Of course the city won't need as many oranges, so a lot of you orange growers can leave too. The city won't need as many eggs for breakfast, so you chicken raisers might plan on putting your hens on some kind of a diet that will cut down their production.

"Mr. Picture Producer, you would be able to let half your staff leave too, because there won't be so many people going out. Also, building theaters will not be necessary, because, like service stations, there would be too many.

"You boys that belong to the building trades and sell building material might plan on joining the exodus—there is nobody here now that isn't under a roof and, if any number of people start the 'Big Parade' there won't be anything for you to do for many years."

In conclusion the appeal read; "Now, Mr. Everybody, are you going to say, 'My little 5-gallon purchase won't make any difference,' or are you going to drive by the cut price sign and say, 'I'll buy as I would sell'."

Retail marketing structures in the Los Angeles Basin have not been noticeably improved by these appeals for public aid in averting a recurrence of a "gasoline war."

Independent service stations in this area generally posted a price of 12.50 to 14.50 cents per gallon as compared with the posted price of 16 cents. In a few isolated instances distress gasoline is retailed as low as 9 gallons for 98 cents.

Organization of the smaller independent refiners was reported making headway. Articles of incorporation have been filed in Delaware to enable them to market their gasoline cooperatively. According to present plans the group will market under the name of the Cosmopolitan Oil Co., at a price of 1.50 to 2 cents under the current posted service station price, and will buy its crude oil through the recently organized Oil Producers' Sales Agency.

Directors of this cooperative crude oil marketing agency have passed a resolution condemning court-appointed receivers of bankrupt oil companies, who continue to produce properties, placed under their control, at full capacity.

Neal H. Anderson, vice president of the agency, pointed out that a large part of the current overproduction in California and the resulting unsettled conditions in the refined oil market is due to the lack of cooperation on the part of these receivers.

Although the resolution does not name the offending receivers of the companies, it is thought to refer to several operating in the Playa del Rey field, where there is still some 10,000 barrels of oil, free to be sold on the open market.

It was pointed out that the receivers had not only refused to curtail their production to agree with proration orders but, in some instances, had threatened the oil umpires with contempt proceedings for notifying prospective buyers that the oil company was producing in excess of allotments. The resolution demands that receivers of these wrecked companies obtain court instructions for curtailment of their production in accordance with the statewide oil conservation plan.

Direct Cracking of Light Crude Oil for Anti-Knock Gasoline

By E. F. Nelson* and Gustav Egloff*

One development in the era of new technique in refining, upon which the oil industry is now entering, is the direct cracking of high gasoline content crude, to secure high yields of anti-knock gasoline. This development is herewith announced as it applies to the Dubbs cracking process.

The process as described is said to be very similar to that used in the western Pennsylvania refineries, referred to in the article in July 8th issue of National Petroleum News, except that the cracking units there charge gas oil, instead of whole crude.

The accompanying article also gives refining analyses of crude from the new Joiner pool in East Texas.

CRACKING units will be the only major equipment in the up-to-date gasoline-producing refinery of the near future.

The growing demand for cracked gasoline and the increasing difficulty of selling straight run, except at a price concession, are pushing the refiner in this direction and bringing about radical changes in refining practice.

By means of an improvement in the refining art, that is the cracking of crude oil direct, the refiner is able to obtain in his cracked gasoline a higher anti-knock value than is possible by other methods without sacrificing his yield—possibly even increasing it.

The latest development is not to be confused with the cracking of heavy crudes which contain little or no gasoline obtainable by straight distillation. It is designed to take crude oils of high gasoline content and crack them directly into high yields of anti-knock gasoline, eliminating the skimming operation altogether and thereby also cutting out altogether the production of straight-run gasoline.

The new process of direct cracking of light crude oil was compared carefully with the other three methods used in refining oil to make gasoline. These are:

(1) Skimming the crude and cracking the topped crude without blending the resulting gasolines, but marketing them separately.

(2) Skimming the crude, cracking the topped crude and blending the resulting cracked gasoline with the straight-run product.

(3) Skimming the crude, cracking the straight-run gasoline or naphtha, cracking the topped crude and blending the two gasolines.

The new system was found to give better results in that it gives the largest yield of gasoline of the highest octane number.

The following table shows the results of cracking tests. The following were cracked:

(1) Joiner crude oil.

(2) Topped Joiner crude, blending the straight-run with the cracked gasoline.

(3) Straight-run gasoline and Joiner topped crude and blending the two cracked gasolines.

RESULTS OF CRACKING CRUDE OIL ENTIRE

	Cracking Crude Oil	Cracking Topped Crude Blending with Straight Run	Cracking Topped Crude, Cracking S. H., Blending the Gasolines
Gasoline %	70.9	70.9	66.4
Octane No.	70	66	72
Flashed Residue %	22.0	23.5	24.5
Gas and Loss %	7.1	5.6	9.1

Considerable experimental work has been done, and more is in progress, on direct cracking of other crudes of various types. The results of this work will be reported in later papers. Joiner crude was selected for the primary work because of the great interest it possesses right now for the entire industry.

*Universal Oil Products Co., Chicago.

Mode of Operation

The method of operating the process to crack crude oil is illustrated in the drawing, a description of which follows:

The crude oil from storage is pumped through to heat exchanger if desired to the heating coil, together with hot reflux condensate which is drawn continuously from the bottom of the fractionating column.

The heated hydrocarbon material discharges into a vertical reaction chamber, maintained under pressure, and then passes into a flash chamber held at lower pressure. The cracked vapors leave the top of the flash chamber passing into a fractionating tower. The cracked residue is continuously drawn from the bottom of the flash chamber, passing through a residuum cooler to storage.

In the fractionator, separation takes place into gasoline vapors and reflux condensate.

The reflux condensate from the bottom of the fractionating tower is returned to heating coil for further treatment together with the crude oil charging stock, as described above.

The gasoline vapors flow from the top of the fractionating tower, thence through a condenser coil and finally into a distillate receiving vessel.

The incondensable gas passes from the top of the receiver to a scrubbing system for the recovery of its gasoline content. The end-point gasoline is simultaneously discharged from the bottom of the distillate receiver flowing to a storage tank.

A. Cracking of Joiner Crude Oil

The Joiner crude from East Central Texas contained 35.7 per cent, 400 degrees F. end-

point, gasoline of 56 octane number. The topped crude of 24.7 A.P.I. gravity represents 63.3 per cent of the crude oil.

The properties of the crude oil are as follows:

A.P.I. grav.	37.9
Sulfur %	0.23
Cold test	Below 0° F.
Init. b.p. °F.	118

A. S. T. M. (100 cc. Distillation)

% Distilled Over	°F.
5	160
10	196
20	261
30	348
40	438
50	526
60	675
70	701
80	724
90	749
End point	760 plus
Coke % by weight	2.3
Loss %	1.0

The Joiner crude was cracked in its entirety in a continuous manner. The yield of 70 octane number gasoline was over 70 per cent, based upon the crude oil charged to the cracking process.

Two experimental runs were made upon the Joiner crude oil, the results of which are given in Table 1.

B. Cracking of Topped Crude

The Joiner crude oil was skimmed of its 400 degree F. endpoint gasoline constant. The straight run represented 35.7 per cent of the crude. The topped crude left as a residue was 63.3 per cent. The topped crude used as cracking stock had a high cold test of 65.

The analyses of the straight run gasoline and the topped crude oil are given below:

Gasoline

Gravity °A.P.I.	58.7
Octane No.	56

100 cc. A.S.T.M. Distillation

Init. b. p. °F.	124
% Distilled Over	°F.
5	159
10	174
20	196
30	217
40	235
50	255
60	276
70	301
80	325
90	356
End point	400

Table 1—Results of Experimental Run on Direct Cracking of Joiner, East Texas, Crude

Product Yields (Based on Crude Oil)

Gasoline %	71.0	70.7	70.9
Grav. °A.P.I.	60.2	60.4	60.3
End point °F.	404	394	399
Octane No.	70	69	70
Flashed Residue %	22.6	21.4	22.0
Grav. °A.P.I.	8.6	7.7	8.2
S. F. Visc. @ 122°F.	90	124	107
Gas (cu. ft. per bbl. of raw oil)	328	361	345
Gas and Loss %	6.4	7.9	7.1

Analyses of the Cracked Gasoline

Gravity °A.P.I.	60.2	60.4
Octane No.	70	69

100 cc. A.S.T.M. Distillation

Init. b.p. °F.	91	95
% Distilled Over	°F.	
5	124	131
10	143	147
20	177	179
30	206	206
40	232	231
50	258	254
60	281	275
70	309	299
80	338	330
90	382	367
End point	404	394

Analyses of the Flashed Residue

Gravity °A.P.I.	8.6	7.7
Flash (Cleveland Open Cup) °F.	210	215
Fire (Cleveland Open Cup) °F.	305	315
Flash (Pensky Martens) °F.	165	175
Visc. S. F. @ 122°F.	90	124
Cold test—°F.	35	40
B. S. & W.—%	0.2	0.2

100 cc. A.S.T.M. Distillation

Init. b.p. °F.	380	406
% Distilled Over	°F.	
5	506	514
10	566	572
20	636	634
30	671	663
40	691	685
50	704	696
60	.....	703
End point	754	737
% Over	86.0	83.0
% coke by weight	14.7	17.5
% @ 410°F.	0.5	Trace
% @ 437°F.	1.0	0.5
% @ 572°F.	11.0	10.0

Table 2—Results of Experimental Run on Cracking of Topped Joiner, East Texas, Crude

Product Yields on Topped Crude)

Gasoline %	54.2	57.3	55.8
Gravity °A.P.I.	59.2	59.4	59.2
End point °F.	397	400	399
Octane No.	73	73	73
Flashed Residue %	38.0	36.2	37.1
Gravity °A.P.I.	8.6	7.4	8.0
S.F. Vis. @ 122°F.	95	142	119
Gas (Cu. ft./bbl. of topped crude)	496	470	483
Gas and loss %	7.8	6.5	7.1

Analyses of Cracked Gasolines from Topped Crude

Gravity °A.P.I.	59.0	59.4
Octane No.	73	73

100 cc. A.S.T.M. Distillation

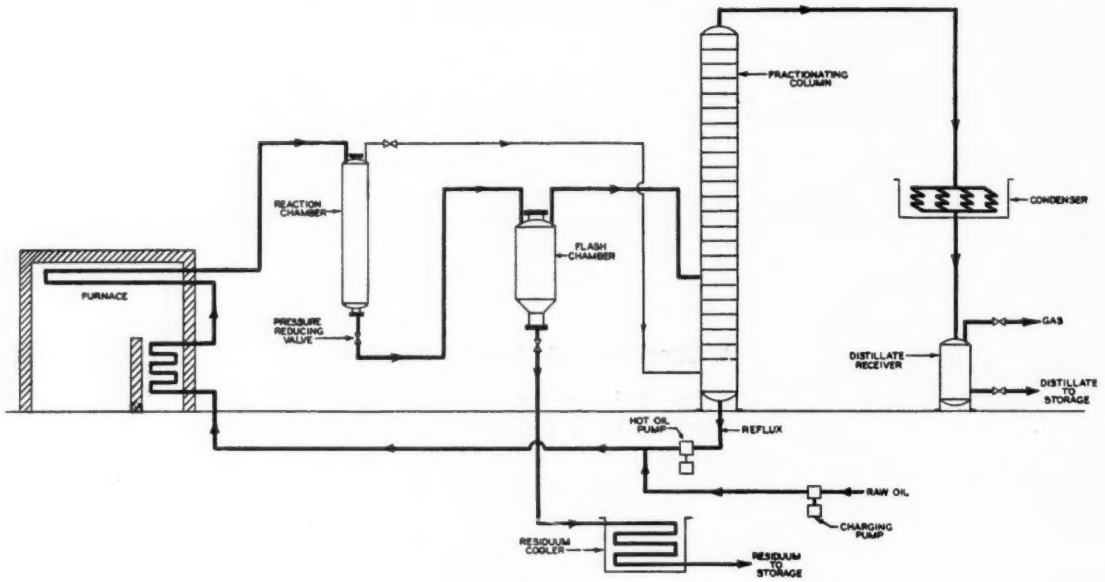
Init. b.p. °F.	108	103
% Distilled Over	°F.	
5	136	128
10	141	152
20	180	184
30	208	213
40	234	240
50	261	268
60	282	292
70	306	316
80	330	340
90	364	371
End point	397	400

Analyses of the Flashed Residue from Topped Crude

Gravity °A.P.I.	8.6	7.4
Flash (Cleveland Open Cup)	250	255
Fire (Cleveland Open Cup)	355	360
Flash (Pensky-Martens)	185	170
Visc. S. F. @ 122°F.	95	142
Cold test—°F.	50	50
B. S. & W.—%	0.2	0.4

100 cc. A.S.T.M. Distillation

Init. b.p. °F.	437	434
% Distilled Over	°F.	
5	547	538
10	584	592
20	654	664
30	701	705
40	726	715
50	744	725
60	752	744
70	.....	.....
80	.....	.....
90	.....	.....
End point	760+	760+
% Coke by weight	15.3	18.2
% @ 410°F.	0.0	0.0
% @ 437°F.	I.B.P.	Trace
% @ 572°F.	8.0	8.5



Flow chart of Dubbs system for cracking crude oil

Topped Joiner Crude

Gravity °A.P.I.	27.4
Flash (Cleveland Open Cup) °F.	220
Fire (Cleveland Open Cup) °F.	250
Flash (Pensky Martens)	215
Visc. S. F. @ 122°F.	29
Sulfur %	0.43
Cold test—°F.	65

100 cc. A.S.T.M. Distillation

Init. b.p. °F.	415
% Distilled Over	**°F.**
5	461
10	490
20	526
30	579
40	635
50	682
60	700
70	706
80	715
90	710
End point	726
% Coke by Weight	3.4
% @ 437°F.	2.0
% @ 572°F.	28.5

The operating conditions to which the topped crude oil was subjected with the yields of products are given in Table 2. They are the results of two experimental tests conducted under comparable conditions to which the crude oil was cracked.

The straight run and cracked gasolines were blended in the proportion in which they were produced from the topping and cracking of topped crude oil operation.

The yield of blended gasoline averaged 70.9 per cent having an octane number of 66.

The yields of gasoline, flashed residuum and gas are tabulated as follows:

Product Yields
(Based on Crude Oil)

			Average
S. run gasoline %	35.7	35.7	35.7
Cracked gasoline %	34.3	36.1	35.2
Total gasoline %	70.0	71.8	70.9
Octane No.	65	66	66
Flashed residuum %	24.0	22.9	23.5
Gas (cu. ft./bbl.)	314	298	306
Gas and loss %	6.0	5.3	5.6

The 400 degree endpoint gasoline which was distilled from the Joiner crude was cracked in order to improve its knock rating.

Analysis of this gasoline is shown:

Gravity °A.P.I.	58.7
100 cc. A.S.T.M. Distillation	
Initial B. P. °F.	124
% Distilled Over	**°F.**
5	159
10	174
20	196
30	217
40	235
50	255
60	275
70	301
80	325
90	356
End point	400
Octane No.	56

The octane number of this gasoline was 56 as obtained by test on a Series 30 Ethyl Standard Motor. The 375 degree F. cut from the above straight run gasoline also showed an antiknock rating of 56 octane number when tested in the same manner.

Due to the low knock rating of the straight run gasoline, it was thought to be more economic to crack it in its entirety, rather than fractionate out a very low endpoint gasoline and then crack the naphtha fraction.

The operating data and products yields are tabulated as follows:

Product Yields
(Based on 400 E.P. Gasoline)

Gasoline %	88.3	86.2	87.3
Gravity °A.P.I.	60.6	60.6	60.6
End point °F.	375	368	372
Octane No.	71	71	71
Bottoms—%	2.7	3.4	3.1
Gravity °A.P.I.	24.2	25.2	24.7
Gas (cu. ft./bbl.)	244	261	253
Gas and Loss %	9.0	10.4	9.6

Analyses of Cracked Gasolines from Straight Run Gasoline

Gravity °A.P.I.	60.6	60.6
Octane No.	71	71
100 cc. A.S.T.M. Distillation		
Init. B. P. °F.	93	108
% Distilled Off	**°F.**	
5	136	143
10	158	160
20	183	182
30	206	203
40	224	220
50	241	237
60	260	255
70	283	276
80	308	300
90	346	330
End point	375	368

Analyses of Residue from Cracking Straight Run Gasoline

Gravity °A.P.I.	24.2	25.2
100 cc. A.S.T.M. Distillation		
Init. B. P. °F.	383	387
% Distilled Over		**°F.**
5	413	410
10	424	426
20	431	434
30	440	443
40	450	450
50	460	462
60	475	476
70	502	510
80	565	580
90	670	704
End Point	746	744

The results of cracking the straight run gasoline and the topped crude separately and

(*Continued on Page* 40)

Automatic Control is Stressed In Wellsville Refinery

The accompanying description of new features of the Sinclair Refining Co.'s refinery at Wellsville, N. Y., was prepared through the joint efforts of O. W. Walchli, general manager of the plant, and E. M. Lyons, president of the National Petroleum Association, after the visit of members of the association to the plant June 26. The original refinery was put into operation in 1902; but practically rebuilt, and greatly enlarged, in 1930 and 1931.

THE original refinery at Wellsville was put into operation on Sept. 27, 1902. The company was originally the Wellsville Refining Co., in which the Union Petroleum Co., of Philadelphia, had a substantial interest. Subsequently, Unicn Petroleum Co. obtained practically all of the stock.

In 1919, the Union sold its interests to the Sinclair Refining Co. and, owing to the increasing demand for lubricating oils, and particularly for motor lubricants and also to the increased production of Pennsylvania crude, occasioned by the "flooding" method, it became necessary to enlarge the refinery at Wellsville.

In the initial expansion of the plant, the first pipe still for the continuous refining of Pennsylvania crude oil was installed at Wellsville in 1927. This pipe still is a single flash unit having a capacity of 2500 barrels per day when running to 600 steam refined stock bottoms. It is equipped with the conventional heater having convection and radiant heat tubes. The crude passes through a vapor heat exchanger and a bottoms exchanger entering the heater at about 300 degrees F. It is then flashed into a tower, 6 feet 6 inches by 75 feet, having 36 bubble trays. Three side streams are removed from the tower; paraffin distillate, gas oil and kerosine. The overhead gasoline passes through tubular condensers to tankage.

It soon became necessary to obtain even more crude capacity than the 2500 barrels on the first pipe still. Accordingly, in 1930, a 7500-barrel unit was built which gave the plant a total capacity of 10,000 barrels per day.

During 1930 and 1931 the entire plant has been practically rebuilt and greatly enlarged. The equipment is all of the most modern construction. A brief description of the most important features follows:

The 7500-barrel pipe still unit is also equipped with a convection and radiant tube heater. The crude is charged through an overhead vapor heat exchanger and passes through a side stream and bottoms exchanger into the heater. At the heater inlet the preheated crude, at about 350 degrees F., splits into two parts entering the convection bank on opposite sides. It flows in two streams through the convection and radiant banks discharging into a common flash section in the tower. The heater outlet temperature varies according to the stock to be made as a bottoms in the tower. The range is from 680 degrees F. on 85/90 viscosity at 210 bottoms to 750 degrees F. on a 650 S. R. Stock.

The unit is equipped to burn either oil or pulverized coal, the fuel requirement ranging from 2 to 2.5 per cent. It is successfully handling pulverized coal in every day operation and thereby effecting a considerable saving in fuel cost. Ash from the pulverized coal is handled through a sluicing system which washes the ash out of a hopper in the bottom of the furnace into a concrete sump.

The tower is the highest that has been built for a single flash pipe still unit. It is 11 feet 6 inches in diameter by 156 feet high, equipped to remove eight side streams as tests products in addition to the overhead gasoline and bottoms. These side streams consist of wax distillate, paraffin distillate, gas oil, furnace oil, "300" oil, kerosine, 300/400 naphtha and 200/300 naphtha. The tower contains 70 bubble trays, including an internal stripping section for each side stream. These stripping sections use superheated steam exhausted at 30 pounds from the steam pumps used on the unit. The steam enters three spiders in the stripping sections and is controlled by means of orifice plates in individual lines to each section.

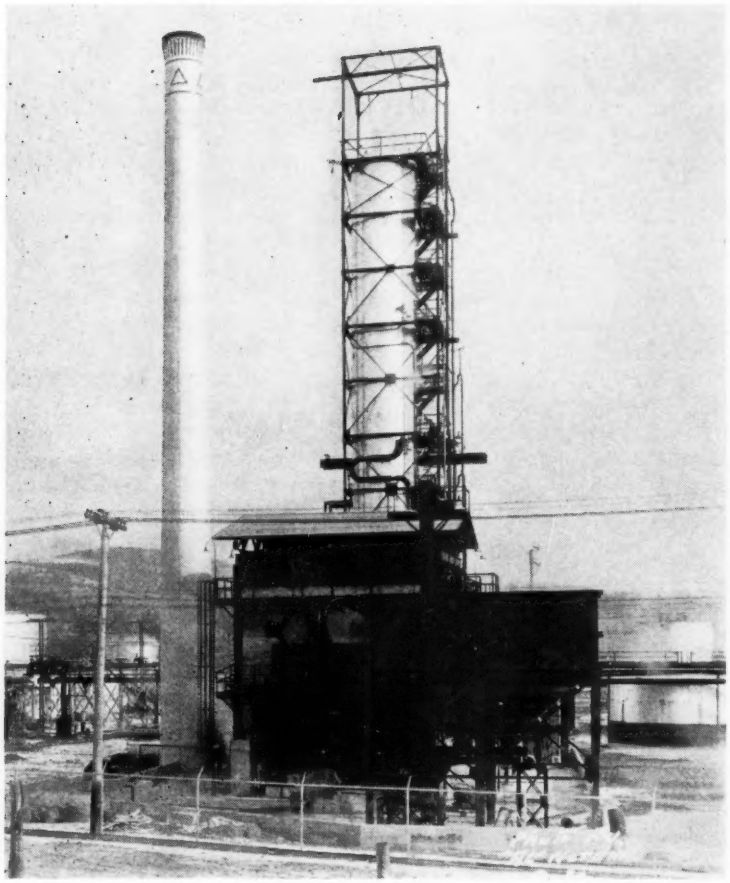
Since the height of the tower makes it impractical for the operator to manually adjust the take-off valves on each side stream to maintain test products, remote control mechanism operating Selsyn motors on each valve has been installed. Thus the operator can change the setting at any section on the tower by simply turning a wheel in the receiving house. Dials on these wheels indicate the setting so that he has but to look at the dial to know how the take-off valves are setting.

THE control board in the receiving house consists of a charging rate controller, a "head" temperature controller and a multiple point potentiometer recorder. The unit is also equipped with an indicating pyrometer connected to 71 points throughout the system for test purposes.

Tubular exchangers, condensers and coolers are used throughout the unit. The gasoline tubular equipment is protected by feeding a small quantity of weak NaOH into the vapor line above the vapor heat exchanger.

A bright stock solution rerun unit was built this year to handle 8000 barrels per day of dewaxed naphtha solution. The feed stock for this pipe still has been contact treated and dewaxed at the centrifuge plant.

The heater on this unit is



A lubricating oil re-run still under construction at the Wellsville, N. Y. refinery of the Sinclair Refining Co.

identical in size and construction as the crude unit heater described above. Tubes are 4½ inches I. D. in the convection bank and 5 inches I. D. in the radiant bank.

The tower is 96 feet high and three side streams are removed. They consist of neutral stocks ranging from 180 vis/100 to 50 vis/100 depending upon the test viscosity required on the bottoms. Again each side stream is removed from a stripping section wherein superheated steam is used to give the required flash test on the product.

Since this unit is producing as a finished product, except for color and carbon residue, the various grades of motor oils, it is necessary to maintain strict control over the bottoms product. Samples are sent to the control laboratory every half hour for flash, fire, vis. at 210, vis. at 100 and pour test.

Boiler House

This plant has probably the most up-to-date boiler house in any refinery. The boiler house proper is located on the bank of the Genesee river and is built of brick and steel, enclosing 3 Edgemoor boilers 550 H. P. and 3 Babcock & Wilcox boilers 600 H. P. The Edgemoor boilers are stoker fired using underfeed type stokers. The steam is generated at 125 pounds pressure for plant consumption. The furnace proper has a back water wall giving additional heating surface and allowing the boilers to operate normally without difficulty at 250 per cent rating.

The B. & W. boilers are of the latest construction, operating at 400 pounds steam pressure and fired with powdered coal. The furnace is equipped with three sides as water walls, the tubes of which are covered with Bailey blocks which allow a very flexible operation. The Bailey blocks accumulate ash and allow high furnace temperature at low ratings even with the water walls. As the rating is increased on the boiler the ash melts off and good heat transfer is obtained for any rating. The ashes are removed from the boiler with a water sluicing system, the ashes passing through a clinker grinder previous to the time they enter the pit. This is necessary to prevent plugging of ash removal pumps which pump the water and ashes from the pit.

Probably the most interesting thing on these boilers is the automatic control. Every possible move on these boilers is controlled automatically with the steam pressure the controlling factor. A slight decrease in steam is immediately reflected on the coal fed to the unit, the forced and induced draft fans, air through the pulverizer and a balancing draft mechanism. These operations are all handled electrically by using automatic equipment. It is also possible for the operator to control each move separately by using a push button control system.

These boilers operate normally at 300 per cent rating each generating 54,000 pounds of steam per hour. Fifteen to 16 per cent CO_2 is maintained at the boiler outlet, resulting in an overall efficiency of approximately 85 per cent on the unit.

The outgoing flue gases pass through an air heater countercurrent to the air for combustion. Steam costs approximately 15 cents per 1000 pounds from the boiler.

By-Product Electrical Energy

This steam at 400 pounds pressure, passes to high pressure turbines operating at 400 pounds inlet and 125 pounds outlet pressures. The steam passing from the outlet of the turbines passes through a desuperheater where water is added to reduce the superheat before entering the plant mains with the steam generated on the 125-pound pressure boilers. This water added to the desuperheater is condensed steam from absorption type ammonia generators. These high pressure turbines, three in all driven generators which produce the electric energy for the plant have a total capacity of 3000 KVA. The costs on this operation are approximately 2 mills per KW generated.

When entering this boiler house and seeing the operations as they are carried on, you are

reminded of a public utility power house where every possible means is used to obtain high efficiency and reduced costs.

Wax Plant

This plant is equipped with a 5-150 ton absorption type refrigerating machines; three of these machines are operated on brine solution, one on chilling towers and one for either service.

The generators are operated with 30 to 40 pounds exhaust steam which is obtained from the exhaust of all pumps and moving equipment in the wax plant. The steam is condensed in these generators and the water is added to the desuperheater located at the exhaust of the high pressure turbines.

The paraffin distillate is chilled with brine solution and handled through plate and frame presser. There are eight 400 plate 48 inches diameter presses in the plant pressing for zero pour pressed oil.

The plant has 40 super centrifuges handling long residuum naphtha mixture at 60 degrees below zero for low cold test oils.

This mixture is first cooled in tanks down to 20 degrees below zero with brine solution and then transferred to a series of chilling towers. There are two sets of these towers having 7 towers in each series. The oil is pumped into No. 1 tower and then the others in series, out of the seventh tower to the centrifuge machines. The cooling in these towers is accomplished with ammonia, using increased vacuum on the ammonia through the series to obtain the low temperature. This vacuum is maintained with ammonia blowers taking suction on the ammonia coils and discharging the ammonia to the generating equipment.

This is a very large wax plant handling large volumes of oil at low temperature with the latest type equipment. The dewaxed oil from this plant must be zero or lower cold test.

Barrel House

The barrel house has 12 storage tanks of 2600 barrel capacity for lubricating oils and numerous tanks for barrel shipments. The barreling tanks are located on the second floor of the building where the oil flows by gravity to the barreling racks. The barrels are filled on a roller conveyor and pushed to an operating conveyor which carries them to the weighing table where they are weighed and wheeled to box cars. The barrel house has a loading platform for 5 box cars and the lubricating rack for 20 tank cars.

Smaller cans are filled with automatic equipment.

Cracking Stills

This plant has a cracking plant under construction using DeFlorez heaters. The plant has a two stage unit for rerun of the pressure distillate and a debutanizer and casinghead recovery plant under construction. This operation is expected to start this summer.

Light Oil Treating Plant

All equipment for treating straight run gasoline, 200/300 naphtha, cleaners' naphtha, kerosine, 300 oil, and similar light products is arranged in one group. One building houses all pumps for handling the various oils to be treated.

Straight run gasolines and naphthas are handled by the continuous method in a closed system. The treatment consists in subjecting them to the action of caustic solutions, hypochlorite solution, and water wash. After leaving the treating plant, these products are sent directly to finished storage.

Kerosine and 300 oil are treated in batch agitators. This treatment involves preliminary treatment with doctor solution, followed by sulfuric acid, and finishing treatment with fine fuller's earth. Earth is removed from the earth-oil mixture by a No. 12 Sweetland press. Earth used is the company's own production from Olmstead, Ill., property. After leaving the presses, the oils are sent directly to shipping tanks.

Contact Plant

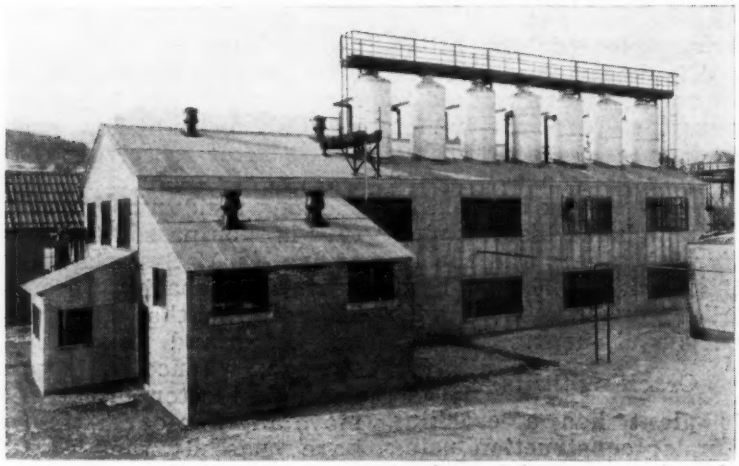
Treatment of lubricating oil stocks and distillates for removal of impurities and improvement of color is done entirely by contact treating methods. A highly active, finely divided, especially prepared absorbent earth is used for this purpose, the earth being used in a dry state.

Long residuums are treated at very high temperatures (upwards of 650 degrees F.) Conservation of heat is secured by use of a series of heat exchangers. After receiving contact treatment, naphtha is added to the long residuum, and the mixture is then passed through one of five No. 12 Sweetland presses having a capacity of one ton. The oil-naphtha mixture from the Sweetland presses goes to storage, whence it is pumped through blotter presses to remove any fine earth which may have passed the Sweetland presses, and thence to the centrifuge plant for dewaxing.

After a Sweetland press is loaded with earth removed from the mixture, it is disconnected from the system; oil remaining in the earth is washed out with naphtha; the earth is steamed and dropped in a conveyor system which delivers it to bins. Used earth is regenerated by means of a Herreshoff furnace, three of such furnaces being used in the plant. After regeneration, earth is returned by conveyor to bin storage in the treating plant, where it is used in mixture with fresh earth on further treatment.

This plant also handles the final contact treating of the test oils which make up the various grades of motor oils manufactured at the plant. These test stocks come from the rerun still, which operates on a mixture of dewaxed treated long residuum naphtha solution and pressed oil. This final contact treating is done at comparatively low temperatures. The earth is removed from the oil by the Sweetland press, from which the oil itself goes to blotter presses for final finishing. There the oil passes through five sheets of blotting paper, and these are changed at regular intervals. This final filtering removes the last traces of earth and/or moisture. After leaving the blotter presses, the oils go to finished storage, and are then available for shipment.

The fire protection system consists of portable foam equipment provided with about 25,000 pounds of each powder for the dual powder system. Water mains below ground cover all parts of the plant and furnish ready access to 125 pounds water supply for fighting any



The light oil treating plant at the Wellsville, N. Y., refinery of the Sinclair Refining Co.

fire which might occur. Two 1000 GMP pumps, one steam and the other electrically driven, are available at all times for pumping water to the mains. Five chemical houses are located at strategic points throughout the plant. Their equipment consists of 40-gallon foam generators, portable ejectors, foam powder, hose carts, and other standard equipment.

May Shipments of Motor Fuels Lag Behind a Year Ago

CLEVELAND

SHIPMENTS of gasoline from refineries in May, according to the report of the U. S. Bureau of Mines, totaled 35,716,000 barrels, a daily average of 1,152,000 barrels. In May, 1930, shipments totaled 36,497,000 barrels, a daily average of 1,177,000 barrels. The percentage of decline in May this year was 0.2.

Shipments of gasoline the first five months of 1931 totaled 153,130,000 barrels, compared with 153,997,000 barrels in the first five months of 1930. The percentage of decline this year was 0.5.

Gasoline tax figures for the first four months of 1931 show an increase in consumption of 3.3 per cent. It is probable that the poor showing of shipments is due mainly to a decrease in demand for industrial naphthas and solvents, shipments of which are classified by the bureau with gasoline. Tax figures for five months will not be available until late this month but indications are that a small percentage of gain will be shown over figures for the comparable period of 1930.

Stocks of gasoline May 31 were 47,948,000 barrels, compared with 54,046,000 barrels at the end of May, 1930. This is evidence of the co-operative efforts of refiners to hold finished supplies of gasoline more in line with market demand. Stocks, however, are still larger than stocks recommended by the Advisory Committee on Statistics of the American Petroleum Institute.

Production of motor fuels in May totaled 39,019,000 barrels, a daily average of 1,259,000 barrels, compared with a daily average of 1,220,000 barrels in April, and 1,267,000 barrels in May, 1930.

Exports of motor fuel averaged 161,000 barrels daily in May, compared with 140,000 barrels daily in April, and 160,000 barrels in May, 1930.

Imports averaged 34,000 barrels daily, compared with 45,000 barrels daily in April and 57,000 barrels daily in May, 1930. Imports the first five months totaled 6,069,000 barrels, compared with 6,488,000 barrels the first five months of 1930.

Kerosine production was down 4,000 barrels daily average to 109,000 barrels daily. Stocks of kerosine were lowered from 6,129,000 barrels April 30 to 5,960,000 barrels May 31. May 31, 1930, kerosine stocks were 8,384,000 barrels.

Stocks of gas oil and distillate fuels rose from 14,912,000 barrels April 30 to 16,820,000 barrels May 31. Stocks of residual fuel oils rose from 18,942,000 barrels April 30 to 19,759,000 barrels May 31.

Production of lubricating oils was reduced 4000 barrels daily average to 73,000 barrels.

Direct Cracking

(*Continued from Page* 36)

then blending the products are shown in the table below.

Product Yields

(Based on Crude Oil)

			Average
Cracked gasoline (from straight run)—%	31.5	30.8	31.2
Cracked gasoline (from topped crude)—%	34.3	36.1	35.2
Total cracked gasoline —%	65.8	66.9	66.4
Octane No. of blended gasoline	72	72	72
Residue (from cracking straight run gasoline) —%	1.0	1.2	1.1
Flashed resid. (from topped crude)—%	24.0	22.9	23.4
Total residue—%	25.0	24.1	24.5
Gas and loss—%	9.2	9.0	9.1

All gasoline yields include the gasoline recovered from the incondensable gases in each test.

Joiner crude or cracking stocks therefrom are low in sulfur and refine readily into finished gasoline by means of chemical reagents such as sulfuric acid, caustic soda and water or by means of treatment in the vapor phase.

Hydrogenation Developments in Russia†

The Bergius Method; Earlier Work of the Author and of Emil Fischer on Hydrogenation; The I. G. Farbenindustrie's Plant at Merseburg; Hydrogenation of Liquid-Solid Mixtures, of Tars, Peats, Moscow Coal

By V. N. Ipatyev*

PART 2

II. Hydrogenation of Organic Compounds to Prepare Synthetic Crude

FOR the last 25 years the attention of the chemists was centered to a great extent on the investigation of the decomposition of a great variety of organic substances at high temperatures. It relates to synthetic as well as to natural substances and was carried out with the intention of determining the rules which are followed by these processes and to enable us to obtain products desired and which are for us of the greatest value. There could not be any doubt that previous to this century we would not have been able to foresee the mechanism of decomposition of a given substance and the nature of influence to which it should have been subjected to promote its decomposition in the desired direction.

Investigations carried out by the author in the very beginning of this century (1901) pointed out the immense catalytic action exercised by the walls of the reaction vessel in which the decomposition is conducted. In spite of the high temperatures, up to 600°C. the introduction of the catalyst changes sharply the character of the decomposition of the organic substance and directs it over a certain course whereby products of a very definite character are obtained. The reversibility of the catalytic processes at high temperatures was found very soon and the great importance of the pressure exercised on the mechanism of the decomposition and on the synthesis of organic compounds at high temperatures was finally established.

These basic beginnings of the pyrolysis of organic compounds developed on individual compounds, served as a basis in the investigation of various processes which were destined to play an important role in various branches of the chemical industry. We shall review only the processes which are related to the preparation of synthetic crude oil, i.e. to that particular mixture of hydrocarbons which is found in various types of crude oil. The following pyrogenetic processes are going to be dealt with:

1. Pyrogenetic decomposition under pressure of various solid fuels by the Bergius method. (The dry distillation and the preparation of semi-coke of various mined products such as coal, peat, sapropel, etc., which also yield liquid hydrocarbons which could be used directly for preparing synthetic crude or as an addition to natural crude oil gasoline to improve their properties are not included in this paragraph).

Low temperature carbonization research in Russia dates back to 1913 and the names of Professor Rubin and G. I. Bulgakov should be mentioned in this connection. Substantial investigations were undertaken with Siberian bog-head coals by Professor G. L. Stadnikov and with other fuel varieties by A. P. Shakhno, E. V. Rakovskii, N. N. Gavrilov, Gebler, Walgis and others.

2. Destructive hydrogenation under pressure of solid fuel mixed with various high molecular oils and tars.

3. Cracking of tars and residues obtained in the dry distillation of various hard and brown coals, peat, bog-heads, sapropels and shales, with and without pressure and with and without hydrogen.

4. Cracking of heavy crude oils and tars with and without pressure in the presence and absence of hydrogen.

1. The Bergius Method

As is already known, a patent was taken out in Germany by Bergius in 1913. It protects the method for preparing light hydrocarbons by heating heavy hydrocarbons, characterized by hydrogenating hydrocarbons during the heating by compressed hydrogen. In another patent Bergius protects the method of treating hard coal and similar substances obtained by natural and artificial carbonization by reacting these substances with hydrogen.

The treatment with hydrogen under high pressure must be carried out until the hard coal is converted into liquid products, which then may be subjected to any kind of a chemical treatment or can be used as fuel oil. Furthermore only hard coal con-

*Member, Petrograd Academy of Science.

†Translated from the Russian manuscript by A. A. Boehtlingk.

taining not more than .85 per cent carbon could be hydrogenated by the Bergius method.

The French engineer A. Kling who became acquainted in detail with coal liquefaction as well as with the pyrolysis of heavy hydrocarbons by the Bergius method and who was also familiar with all the investigations carried out by the author of this paper beginning from 1904 up to 1913 says:[4] "The similarity of Ipatyev's method patented by Bergius is indisputable." Professor A. Travers comes to the same conclusion[5] in saying that: "Bergius applied Ipatyev's method of hydrogenation under pressure." A. Kling says furthermore in his article: "Ipatyev thought of carrying out a pyrogenesis of organic compounds not only under pressure which could be built up by vaporization, but also in the presence of hydrogen at a high original pressure (averaging 100 atmospheres) introduced at the beginning of the experiment.

"These investigations showed that the reaction of pyrogenation is carried out at temperatures and by methods which are distinctly different and which depend upon whether they were carried out in the presence or in the absence of hydrogen preliminarily introduced under pressure. They also showed that products obtained in the latter case had a higher degree of hydrogenation than in the former, and further the metallic parts of the autoclave, play an important role."

IT IS quite unlikely that the research carried out previously by the author could have been unknown to Bergius, because all the reports were published in German journals and doubtlessly exercised an influence on all investigations carried out by Bergius dealing with the liquefaction of coal and the improvement of heavy oils and tars.

The same is true of an address by the well known organic chemist, Emil Fischer, delivered in 1912 who mentioned the problems of the Institute for Coal Research, which influenced Bergius's decision to begin with the investigation of pyrogenetic reactions at high temperatures and pressures.[6]

Fischer said in his address: "The coal carbonization experiments should be carried out in a hydrogen atmosphere, whereby it would probably be possible to increase not only the yields of ammonia but also of volatile carbonatious compounds and particularly those of hydrocarbons." He says further: "The influence of pressure on the formation of coke should also be investigated. How wonderful it would be if we could succeed in preparing a cheap liquid fuel from its solid varieties by applying suitable reduction processes. It seems to me that this is the basic problem of the coal industry which posesses all the advantages of recent developments in industry and science for its solution."

Fischer mentions further that high yields of liquid hydrocarbons can be expected from brown coals and particularly in the presence of catalysts.

IN SPITE of these historical references we can not disregard the fact that the investigations which were undertaken by Bergius introduced a new inducement in the utilization of solid fuel. They also induce the technical and scientific research men to direct their efforts towards development of new methods for improving various kinds of fuels as well as towards its more economical utilization.

Intensive research on pyrolysis of various fuels under pressure was started everywhere. Its aim was the preparation of high grade gasolines. In the petroleum industry changes in the cracking procedure were also, noticeable by the introduction of a cracking process under pressure with a preliminary addition of hydrogen.

However, it should be noted, that berginization experiments carried out with solid fuels on a commercial scale did not produce the expected favorable results. It was not found profitable to subject to a berginization the solid fuel alone, and therefore the Bergius method was modified by the I. G. Farbenindustrie who developed a new method for the beneficiation of various kinds of fuels.

2. Hydrogenation of a Solid and Liquid Fuel Mixture Under Pressure

The author of this article was the first Russian engineer who succeeded in seeing the plant Leunawerke near Merseburg belonging to the I. G. Farbenindustrie in which the process of brown coal liquefaction is applied. The deposits of this coal in this part of Germany are beyond estimation. Details of this process were described by the author before.[7]

Here the fact should be mentioned that a brown coal which contained 50 per cent of moisture was ground and slightly dried. It was then made up into a paste using heavy oils or the residuum from cracked crude oil. The paste is charged at a 200 atmosphere hydrogen pressure into pressure vessels heated up to 450°-480°C. and is subjected to a pyrolysis.

These autoclave-furnaces, working under a pressure of 200 to 250 atmospheres, are similar to the autoclaves used in the ammonia and methanol synthesis and differ by some modification of their inner equipment, by the machinery used for charging the paste and for the separation of the solid residue impregnated with the heavy oil from the medium and light oils.

The heavy oil removed from the semi-coke is used again in the preparation of the paste, while the solid residue amounting up to 20 per cent is burned under boilers. The separated oil is used for cracking in specially constructed autoclave furnaces also in the presence of hydrogen under 200 atmospheres pressure and it is completely converted into light fractions, synthetic gasoline, whereby various catalysts are added to lower the temperature to 450°-430°C.

A similar destructive hydro-

[4]Chimie et Industrie: *9*, 389-99(1923); C. A.: *17*, 2038(1923).

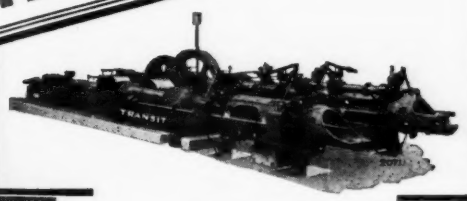
[5]Chimie et Industrie: *13*, 372-82 and 722-30(1925); C. A.: *19*, 2398(1925).

[6]W. Friedmann: "Die Verflussigung der Kohle nach Bergius." 1928.

[7]Izvestiya Teplotekhnicheskago Instituta (Transactions Thermo-Technical Institute) (Russia): 1928, No. 10, p. 3.

Desertion under fire!

—WHEN THEY NEED HIM MOST



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GAS ENGINES
GAS ENGINE GAS COMPRESSORS
TOOLS
for Pipe Line Construction

genation process under pressure and in the presence of alumina, iron- and copper-oxide catalysts was applied by the author in the decomposition of solvent naphtha[8] in 1927. It was also independently patented in France by Kling and Florentin.

Thus the mixing of solid fuels with heavy oils and the subdivision of the process into two phases, made it possible to introduce the manufacture of synthetic crude oil, the best motor fuel, and gasoline, on a large commercial scale. This method is used in the plants of the I. G. Farbenindustrie and by the Aktiengesellschaft fur Kohleveredelung.

We do not have any information to judge the commercial value of these processes and we do not know whether the synthetic gasoline is able to compete with that obtained from crude oil. The above installations used in the liquefaction of a solid and heavy fuel oil mixture can be easily adapted to handle heavy crude oil distillates, long residuums, crude oil fractions and all kinds of tars obtained by dry distillation of various fuels.

3. Destructive Hydrogenation of Tars and Residues Under Hydrogen Pressure

SYNTHETIC crude also can be obtained from products of dry distillation of various mined coals, peat, sapropel, bogheads and shales when subjecting their high boiling tars or residues to a pyrogenetic decomposition under proper conditions. The light fractions from dry distillation of the above fuels can be utilized as gasolines after a proper treatment or after a redistillation. They also can be used as admixtures to crude oil gasolines to improve their properties provided the former contain unsaturated and aromatic hydrocarbons.

Synthetic gasoline can only be obtained by cracking heavy oils and tars, because they are the main products obtained in a dry distillation. It may be proper to discuss first the terms berginization, pyrolysis and cracking before dealing with the conditions existing in the pyrogenetic decomposition of tars. The term berginization which was introduced recently is applied to a great variety of pyrogenetic decomposition processes. This is not quite correct because the term can not be used to explain phenomena which it is intended to cover.

USE of the term berginization would be correct when applied to the liquefaction of solid fuels under pressure and in the presence of hydrogen. The process installed by the I. G. where brown coal is liquefied is no longer a berginization process, because it is carried out in two phases and, while the first phase could be called a berginization, the second phase, where medium oils are decomposed in the presence of a catalyst, should be called cracking under pressure a term already adopted in refineries.

Refineries distinguished between two kinds of cracking, for example, the cracking of crude oil and the cracking of its fractions. The first may be called cracking and the second pyrogenetic decomposition. Cracking is called such a decomposition of the crude oil product which takes place during its distillation and is accompanied by a formation of light liquid fractions and a separation of small amounts of gas from the high molecular hydrocarbons.

A pyrogenetic decomposition or a pyrolysis is accompanied by the formation of a considerably smaller amount of liquid products, an increase in high boiling fractions and a formation of a high amount of coke. A sharp distinction between these two processes is, of course, impossible, but because of its practical importance this separation of the processes is sufficiently justified.

If it is intended to produce a considerable amount of benzene hydrocarbons (up to 14 per cent) at ordinary pressure the crude oil should be decomposed at temperatures amounting to 670°-680°C. In this case large quantities of gas will be produced which will amount up to 50 per cent of the decomposed product. This process should be called pyrolysis.

If the decomposition temperature does not exceed 500°C. a comparatively small amount of gas is obtained and the high molecular components yield considerably more light fractions. Such a decomposition should be called cracking.

Because of the fact that at the present time various oils and tars are subjected to decomposition under pressure and quite frequently in the presence of hydrogen, this process would also be a typical cracking process if the temperature does not exceed 450°-480°C. This is true because insignificant amounts of coke would be formed and the process would be carried out in such a way that the fragments of large molecules would not have sufficient time to become polymerized, therefore being able to form light molecules by adding hydrogen.

The fact that cracking takes place only in the liquid phase was proved by special experiments in which the heated liquid filled the entire vessel in that way developing a very high pressure.[9]

Thus the pyrogenetic decomposition of various medium oils, residues, fuel oils, tars, if it is carried out under pressure and in the presence of hydrogen at a temperature not exceeding 480°C., is a cracking process. The decomposition of crude oils and its fractions above 500°-550°C. should be more correctly called a pyrolysis.

At present quite a number of Russian laboratories are investigating various pyrogenetic reactions as well as the cracking of various products separated by dry distillation under various conditions from a great variety of solid and liquid fuels with the aim of obtaining synthetic gasolines, kerosines, etc.

THE concluded experiments show the great difference in the composition of residues and tars obtained as well as their different behaviors in cracking carried out under pressure in the presence and absence of hydrogen. In order to compare the results obtained and to draw the corresponding conclusions it

[8] V. Ipatyev and N. Orlov: Ber.: *60*, 1963 (1927); C. A.: *22*, 396 (1928).

[9] V. Ipatyev and L. Gurvich. "Decomposition of pyro-naphtha at high pressures by means of the cracking process." Petrograd 1920, 32 pp.

Suppose a refiner could get crude oil for nothing*

Suppose straight-run gasoline was the best in the world**

The refiner couldn't make much of it because the fuel oil would soon drown him

There is too much fuel oil today You can't sell straight-run gasoline at the market either

The sensible thing is to crack the fuel oil into anti-knock gasoline You can sell that

Especially if it is Dubbs cracked

*He can't
**It isn't

Universal Oil Products Co
Chicago, Illinois U S A

Dubbs Cracking Process
Owner and Licensor

appears to be useful to give here some information on experiments carried out with different products. Experiments carried out with tars from Moscow coal, peat, Siberian sapropels and Grozny paraffin base fuel oil will be now described.

Hydrogenation of Coal From the Moscow Basin

Experiments on berginization of Moscow coals and cracking of tars were carried out by N. A. Orlov, N. D. Likhachev and V. V. Tishchenko in the high pressure laboratory of the Academy of Science.

Berginization was carried out with three different coals from the Moscow basin. They were the Pobedinskii, Bobrinskii and Shchekinskii semi - bog - h e a d coals. All these coals are characterized by their high ash and moisture content and therefore require a preliminary treatment before berginization. Specially prepared concentrates were used in these experiments which had 11-13 per cent ash and yielded 8-11 per cent tar, calculated on dry coal, when subjected to dry distillation. The semi-bog-head contained up to 33 per cent ash and produced 6.6 per cent tar (calculated on dry coal). It was found inconvenient and not profitable to hydrogenate the Moscow coals directly; they had to be mixed with liquid tars in the same way as is done in German plants.

The liquid product obtained by hydrogenation of coal mixed with the tar was further cracked under pressure in the presence of hydrogen and various catalysts. The cracking of brown coal tar was carried out in the same manner in presence of catalysts under pressure and in the presence of hydrogen. The main attention was centered in this case on the cracking of phenols present in the higher fractions of tar and on their conversion into low boiling hydrocarbons.

These experiments showed that all three varieties of coal are able to produce various amounts of liquid products when subjected to hydrogenation under pressure under certain conditions. The hydrogenation proceeds much better with the Shchekinskii bog-head, which yields more liquid products. This fact is explained by the predominant amount of bitumens in this coal. How far a direct hydrogenation of a tar and coal mixture is profitable could not be ascertained because of the absence of equipment of a semi-manufacturing scale.

Baldwin Constructs Second Oil Electric Engine

NEW YORK—A Diesel-electric locomotive for switching use that showed a fuel savings in actual service based on car mile of 45 per cent over coal has been constructed by the Baldwin Locomotive Works, Philadelphia.

The power plant is a Krupp Diesel, four-cycle, single-acting, six-cylinder engine, of the airless fuel-injection locomotive type. It has a 15-inch bore and 15-inch stroke. The engine develops 1000 brake horsepower at 500 revolutions per minute.

A test showed fuel consumption to be .465 pounds per brake horsepower with a mean indicated pressure of 135 pounds per square inch when using fuel oil of a heat value of 18,700 B.t.u. per pound. A mechanical efficiency of 73 per cent was shown in the test also.

Trains ranging from 2000 to 4500 tons were hauled in preliminary tests to synchronize the engine and electric equipment. Since these tests the engine has been tried out in six railroad yards, running 15,000 miles and operated about 4000 hours in practically continuous service. The engine also had two months service in heavy mine drag haulage.

The test department of one railroad reports an average fuel consumption of 7.3 pounds per car miles against 51.5 pounds of coal on a steam switching locomotive regularly used in the same yard. Cost of coal in this case was given as .1424 cents a pound and fuel oil was 3.57 cents a gallon, or .45 cents a pound. Cost of fuel per car miles showed a saving of 45 per cent in favor of the Diesel-electric locomotive.

«Promotions» Hinder In Australia

CLEVELAND — Whenever Australia is willing to adopt "real American methods and the exceedingly high mechanical standards demanded by the American Petroleum Institute" in its search for oil, then there will be greater chance of the commercial discovery of oil in that country.

That is the gist of a statement made by Dr. W. G. Woolnough, geological advisor to the Commonwealth of Australia, in a recent issue of the Sydney (Australia) Morning Herald. He replies to a correspondent writing in an earlier issue on "American influence" in Australian oil. Dr. Woolnough takes exception to this correspondent's suggestion on American sabotage in Australia and of their hindrance to oil exploration work in that country.

For failure to find oil in Australia, Dr. Woolnough blames the Australian himself, whom he accuses of vanity and self-satisfaction in that he does not adopt the methods and equipment used in other countries where practice has been developed to a high degree of perfection.

He attacks particularly those unscrupulous companies and promoters whose search for oil is confined mostly to stock market gambles and the sale of shares. What exploratory work is carried on, he labels a make-believe and shoddy imitation of American technique and with equipment inferior and unsuitable.

Even where equipment is of the most modern and technical methods highly efficient, as in the United States, four out of every five wells drilled are dry, he points out.

These companies "get by", he says, with extravagant promises and an "American expert" who has been lined up to say that he never saw so likely a place to get oil.

ADVERTISING PAGES REMOVED

Pioneering with «Bottled Gas»

Comparison of Wet and Dry Gas Systems; Early Carburetting Equipment; Work of Oberfell and the Phillips Petroleum Co.; First Butane Plants; Selling Methods; Problems of the Future

By A. N. Kerr* and C. L. Kerr**

PART 3

Refrigeration

During 1918 and 1919 we sold some gas to a Mr. Jurgens, at Baltimore. He used it in his one-ton ice machine. We had refused to go into this ourselves as we doubted its safety. The practical difficulty was in getting a stuffing box which would hold the gas. He placed the gas on boats which went all over the world during the shortage of ammonia. Some trouble in a meat market in Boston rather vindicated our view of it and, ammonia coming down again, Mr. Jurgens discontinued his use of the gas. The Copeland Co., solving the stuffing box problem and using but one pound in a machine, now use iso-butane in their refrigerators with success. Iso-butane has an efficiency one per cent greater than ammonia and has many advantages.

Imperial Gas Co. Enters California

In 1925 the Imperial Gas Co. was formed as a branch of the Rockgas Products Co. to sell gas in California. It was thought that the Imperial Valley would be a good market. However, after Mr. A. N. Kerr's first look at the Valley he was very doubtful that any market existed for the type of outfit he then had ready to offer.

The first set used was a recarburetting type of wet gas outfit in which the 7-70 cylinders were used. However, it supplied dry gas to stoves. The set was too expensive, as it consisted of two regulators, one of which used liquid and it had three tanks all neatly enclosed in a cabinet. This plant had successfully used the 7-70 long cut gas the previous winter at the home of J. H. Rush at Ravenna, Ohio. While this plant would use any type of cheap product it sold for $125.

It did not take us long to see that California, especially the Imperial Valley, was not that kind of a country. We right about faced, found gas which would work off as dry gas in the 7-70 cylinders, and put out many sets at prices one-half those charged in the east. Later we began to meet conditions as they were in California, placing many simple outfits of one tank and a regulator.

Finding a demand for heating we used several thousand barrel sized containers and found ways to heat homes, schools and churches in that climate. We found that the agent needed all the help we could give him and found it profitable to charge prices lower than had ever before been charged to agents. We soon were in hot water with the automatic heater, the gas radiator, the floor furnace, gas in boats, etc., etc. Any gas man will know.

We furnished gas to the boats with some reluctance, but as they had nothing better and all other means of cooking were also doubly hazardous, we supplied them. However, they do not use sufficient gas to be very profitable. We later retailed larger tanks holding 850 pounds but we found that our agents did not place these tanks on the premises as we had instructed them. One of the most discouraging things about this gas business is the fact that the sets are so widely scattered that adequate supervision is difficult.

Strange as it may seem, as we reduced our prices we did not stop our customer's complaints as we had expected. We only received more of them as our agents went forward and took on heavier installations. We had more problems than ever. In the early days Mr. Derby, of the Standard Gasoline Co., was very helpful in cooperating with us and it was partly due to his understanding helpfulness that we could sell gas at prices which allowed us to do considerable space heating in homes and schools.

Wet Gas Versus Dry Gas

Although with the aid of Mr. Peterson, we were able to introduce the dry gas system in 1911, and further work at Neville Island in 1919 produced the wet gas system, nevertheless the controversy between these two systems still rages and we can say that each has its good points. The controversy really centers on the question as to what is practical.

In the dry gas system commercially pure propane is withdrawn from the top of the tank and passed to the customer directly. In the wet gas system generating burners are used or

*Imperial Gas Co., Long Beach, Cal.
**Rockgas Products Co., Pittsburgh.

The Ideal Anti-Knock Motor Fuel

Cracked gasoline refined with acid is known not to be as good anti-knock motor fuel as the unrefined product. On the other hand the unrefined product while superior in anti-knock value, is inferior from the standpoint of gumming and carbonization. The ideal motor fuel, i. e., one that possesses the full anti-knock value and yet does not cause gum and carbonization trouble, is produced by Vapor Phase Refining.

THE GRAY PROCESSES CORPORATION

961 FRELINGHUYSEN AVENUE

NEWARK, N. J.

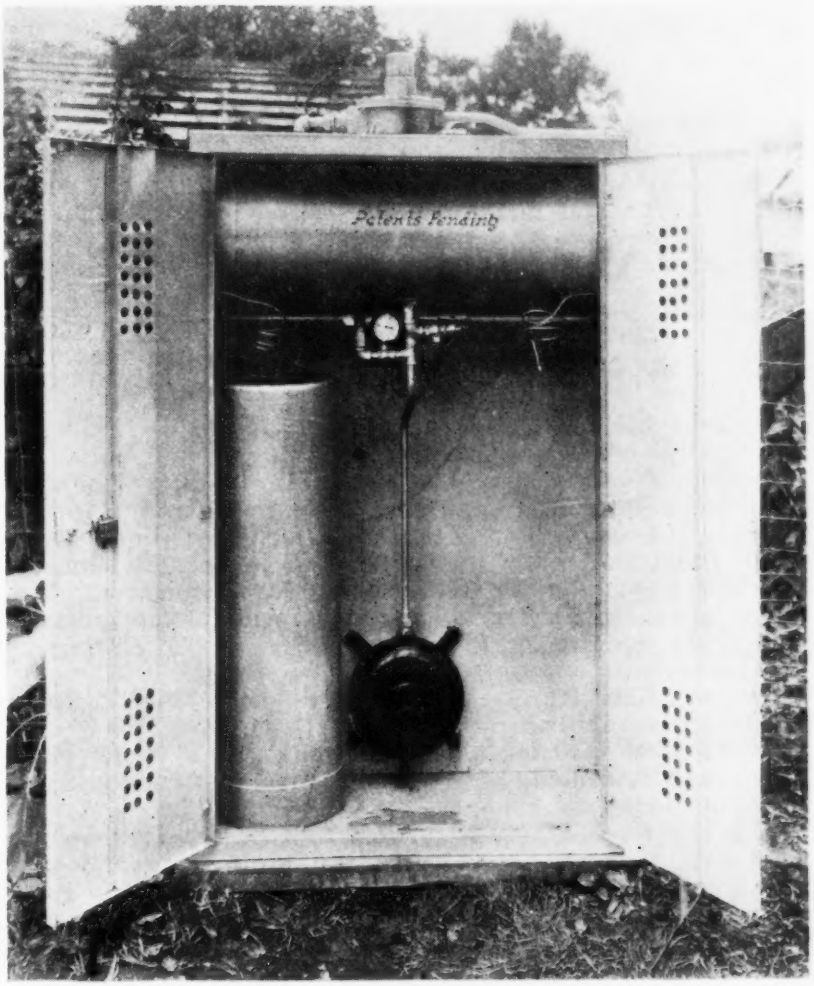
the liquid is allowed to turn to gas under low pressure. With the latter method liquid is drawn through a regulator and expanded in a tank or coil and passes out as gas through another regulator. A mixture containing ethane, propane and butane may be used with the wet system. It is cheaper and much more easily obtained.

However, the recarburetting type of outfit is more expensive to set in the home. The cylinders, on the other hand, may be 4B-150 and are lighter. As propane cylinders are 4B-240 the wet gas cylinders theoretically should weigh 62 per cent as much as the dry gas cylinders. Where it is possible to supervise the installations closely and, where the sets are used for cooking and not overloaded with space heating, the recarburetting type should prove very useful. The dry gas is better adapted to large home installations such as are in use in California and to shipment to long distances where supervision cannot be had.

A Mr. Ford of Charleston, W. Va. about 1927, developed a very neat two-regulator vaporizing system in which the wet gas was vaporized in a coil set in water. This enclosed heat exchanger was placed in the cellar. Several of these systems using either dry or wet gas vaporizers are in use for house service. The Southern Counties Gas Co. are serving small towns with liquid gas which is vaporized in a heat exchanger warmed with hot water. New economies and new developments may be expected in both the wet and dry gas fields. Wet gas may be sold at prices 1 to 2 cents per pound less than dry gas where the gas is shipped L. C. L. any distance, provided the additional cost of installation be absorbed by the customer and the set gives no additional service trouble, due to its more complicated form.

Phillips Petroleum Co.

From this point the business moves swiftly but we will not deal in much detail with it. About 1926 the Phillips Petroleum Co., being then the leaders in natural gasoline production and having more to gain than others because of their gasoline production, became interested and later built an elaborate plant near Bartlesville, Okla. This plant employed three columns and produced propane, butane and heavier cuts. To this company belongs credit for most of the research laboratory work done on liquid gas.



Early recarburetting system

To Messrs. G. G. Oberfell and R. W. Thomas belong much credit for the great amount of ground covered and the great amount of work done for the industry since that time. Just as the Phillips Petroleum Co. was the first to solve the great problem of treating gas from flowing wells on a big scale at its Burbank gasoline plant, so that this plant marked a new epoch in natural gasoline, so also their entry into liquid gas marked a new epoch.

After showing the Bureau of Explosives their data, plants built and work done, they applied for and after effort secured the butane car we had been unable to get for the 35 pound product. They secured lower freight rates in tank cars; they obtained cars in which 30 containers were shipped; they built trucks for servicing single tank outfits and, this outfit being low in cost, they were the first to lease it to the customer in the modern manner.

Two First Butane Plants

Having been interested in "greased air" plants, from our early attempt to build town plants and having attempted to get the Inland Empire Gas Co. to build a recarburetting type of town plant at El Centro, Cal. in 1926, we chose to spend August, 1928 in the Imperial Valley in California, starting the Inland Empire plant on air gas of 600 b.t.u. It was a hot job. In addition to the heat we had the gas company on our hands. They were still under the im-

pression that air and gas, in any proportion, would explode when mixed. The day we turned the mixture into the 30,000 foot holder the man in charge left the works with these instructions, "Now Mind! I am telling you not to do this." He was much pleased that night to find gas in his mains and the plant intact. We wrote the Phillips Petroleum Co. of our experiment only to find that they had done the same thing the month previous.

How Tank Gas Business Is Divided

Of the liquid gas business it may be said that gas manufacturing costs are about 15 per cent of the retail price, and that those who engage in it soon find, as we did, that they are only 15 per cent in the gas business and 85 per cent in tanks, fittings, stoves and expenses of selling. We were surprised to find the tail wagging the dog.

Methods of Selling

As the average customer uses only ten gallons per month, 35 pounds in the North and 50 pounds in the south, very little service can be given, otherwise the usual profit made by most gas companies, 25 to 50 cents net per customer per month, will vanish. Gas men are by nature quiet and conservative because there is not enough at stake to work under high pressure. Time is the most essential element in selling gas rather than money. Gas men openly smile at the efforts of oil men to sell such high priced gas as tank gas.

At first we could not understand this attitude, but after three years effort we had talked to so many indignant ladies and had placed the gas in so many wrong places that we began to see what they meant. High priced gas must be rightly placed, so that its application will give proper value for the cost to the consumer. Space and water heating, for example, may cost more than the customer should attempt to pay or expects to pay and the use of gas under those circumstances

Men and Events in the Development of «Bottled Gas»

1907 **Blau** in Germany, "Blaugas" Long cut 1800 pound, condensate from cracked oil gas. Drawn wet, vaporized, burned dry in gas appliances, many patents.

1909 **Lock,** at Minneapolis, and **Terstegge,** at Louisville, simplify Blaugas set eliminate liquid regulator, use hand valve, large vaporizing tank.

1910 **Kerr** (A. N.) at Sistersville, "Gasol" Long cut 100 pound condensate from Casinghead gas. Drawn dry for gas appliances, but left ends in winter.

1911 **Peterson,** at Follansbee, "Gasol" Short cut 300 pound condensate from casinghead gas. Drawn dry for gas appliances left no ends in winter, good gas. Patents.

1911 **Snelling** at Pittsburgh, "Gasol Set," cutting gas and other applications. Several patents.

1911 **Kerr** (C. L.), at Pittsburgh organizes with Robinson brothers first liquid gas company selling natural gas product.

1911 **Richardson,** first cutter doing heavy work with steel, Pittsburgh.

1912 **Whitfield,** at Wheeling, first appliance and apparatus expert, first to operate auto on liquid gas.

1917 **Garner,** at Pittsburgh, first does large business in cutting steel.

1920 **Kerr** (A. N.) at Pittsburgh, low pressure "Rockgas," 20 pound vapor tension, butane pentane cut in drums, drawn wet, used wet in generating stoves.

1920 **Kelley,** at Rochester, builds protane burner for product above.

1921 **Rafferty & Thompson,** first stabilizer, first sharp propane cut, cheap liquid as a byproduct. New York and Clendennin.

1925 **Kerr** (A. N.), at Long Beach, 70 pound sharp cut low pressure Rockgas for California. Drawn dry, used for house heating in large tanks.

1927 **Oberfell** and **Thomas,** at Bartlesville

First plant selling commercially pure three products, propane, butane, pentane.
First complete published data and research.
First butane plant and butane car. 1928.
First low freight rates.
First container cars and truck-tank outfits.
First leased sets.
First industrial applications.

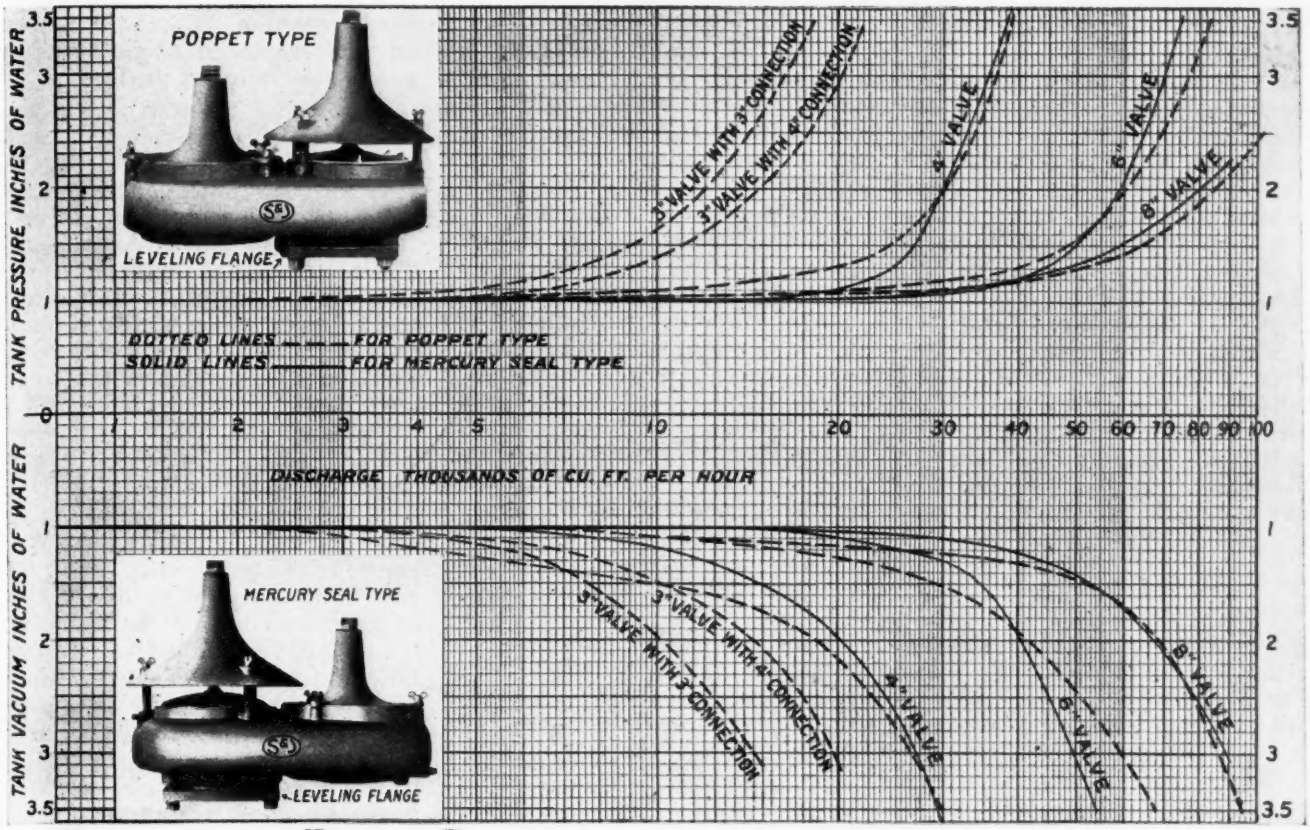
1928 **Balsley** and **Oliver,** at San Francisco, first broad sales plan for major company selling direct through hundreds of substations.

1928 **Ford,** at Charleston, W. Va., first simplified vaporizing set. Draws liquid wet, vaporizes, gas burns dry in gas appliances.

1929. **Hough, Bridge,** and **Thompson,** first hot vaporizing straight gas propane butane plant at Moorpark, Cal.

1930 **Kaye** and **Watkins** at Eldorado first liquid propane cut from refinery tops. Much previous work on Skelgas.

This list only emphasizes important steps, and must necessarily be far from complete, and cannot show the great quantity of good work done in a business way by many of the pioneers.


POPPET TYPE
LEVELING FLANGE
MERCURY SEAL TYPE
LEVELING FLANGE
TANK PRESSURE INCHES OF WATER
TANK VACUUM INCHES OF WATER
DOTTED LINES ..... FOR POPPET TYPE
SOLID LINES _____ FOR MERCURY SEAL TYPE
DISCHARGE THOUSANDS OF CU. FT. PER HOUR
3" VALVE WITH 3" CONNECTION
3" VALVE WITH 4" CONNECTION
4" VALVE
6" VALVE
8" VALVE
0 1 2 3 4 5 10 20 30 40 50 60 70 80 90 100

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BERKELEY, CALIFORNIA
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Compare capacity of S&J Breather Valves with that of any other make. Investigate the special features found only in S&J Breather Valves. They are operating equally as satisfactorily in the tropical climate of the East Indies as the blizzards of Alaska. A trial order will convince you of superior performance. Bulletin No. 52 sent upon request.

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Oil men have been buying their fire insurance through us at a

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Design of Complete Wax Plants—Absorption and Compression Refrigerating Machines—Wax Distillate Chilling Machines—High Pressure Filter Presses—Paraffine Wax Sweaters—Heat Exchangers and other Refinery Equipment.

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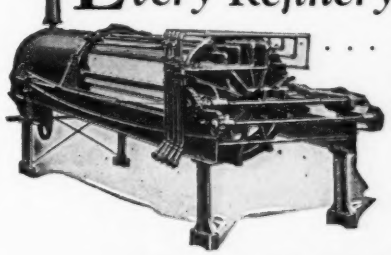
Every Refinery Should Have These



. . . Kelly Pressure Filters to remove B. S. from pressure still residuum

RECENTLY, another repeat order came in for Kelly Pressure Residuum Filters.

This makes well over a score of such units used for removing B. S. from residuum.

Kellys can do this so well and at such low cost (only a few cents a barrel) that every refinery should have them.

OLIVER UNITED FILTERS INC.

SAN FRANCISCO, Fed. Reserve Bank Bldg. NEW YORK, 33 West 42nd St.
CHICAGO, 221 N. La Salle St. LONDON, W. C. 1, 150 Southampton Row
PARIS, T. L. Genter, Concessionaire, 63 Ave. des Champs Elysees

result only in an angry and dissatisfied customer.

It is necessary to use an experienced or trained gas man to keep from getting the gas in wrong places. The electric companies have the same problems relating to application. There are in reality just two kinds of gas which you can sell a man. High priced gas for cooking at about 10 cents per pound, low priced gas for heating at about 3 or 4 cents per pound. Even when the gas is rightly placed and the customer getting full value for his money he may be dissatisfied with the cost and patience and tact must be used in dealing with him.

Problems of the Future

The problems of the future seems to relate more to distribution than to anything else. Except as to the potential supply of liquid gas from refineries the questions relating to production have been fairly well settled. Large quantities of gas of good quality are available. The main questions in regard to transportation, handling and storage have been solved.

The very important question, however, of how to get the gas to prospective consumers at such a cost to them that they may use it in more than a limited way, and also to compensate those having to do with its distribution, is still in the process of settlement. Many methods have been tried, abandoned and retried. Liquid gas distribution is still in the pioneering stage and the way of the pioneer, as well as that of the transgressor, is often a hard one.

The gas man, however, is tenacious and it is likely that he will keep at his problems until his prospective customers either "die or buy."

Tank Ship Surgery Is Successful

LONDON

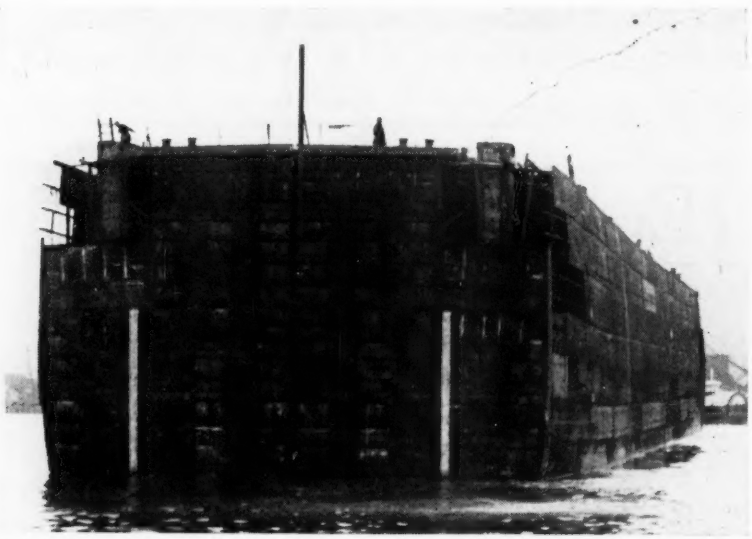
RECONSTRUCTION of the Anglo-American Oil Co.'s tanker Cadillac last year, and of the same firm's Saranac this March, offer owners of tanker tonnage an interesting solution of the problem arising from the destructive effects of certain oil cargoes upon the cargo-carrying compartments of a ship, although the machinery and the remainder of the hull structure may have served barely half the period of their useful life.

The Saranac was placed in drydock and the corroded center portion, extending to a length of about 320 feet, in which the cargo oil tanks are located, was entirely removed and rebuilt to the existing fore and after ends. The same company's tanker Cadillac was similarly treated, so that the repetition of the operation in the case of the Saranac provides an indication of the success of a scheme which when first mooted was regarded as being of a very experimental nature.

Reference to another interesting hull reconstruction was made in a paper by Marley F. Hay on the Maier ship form, read at a recent meeting of the Institution of Naval Architects. The owners of the ship believed that the speed-length ratio, i. e., the ratio of speed to the square root of the length, was excessive for the ship form, and tank experiments were carried out to investigate the effect of increasing the ship's length by 9 feet 6 inches at the bow and stern.

Increased length appeared to offer a saving in power of 18 per cent for the same ship speed. It was then decided to carry out experiments with the increased length of 19 feet added at the bows only, and with the Maier form of hull construction embodied in the new fore-end, and this offered a further reduction in power of 9.2 per cent. On this basis the work is being proceeded with, so that the operation will yield the advantage of extra cargo capacity, because of the increased ship length, together with an economy of 27.2 per cent in the fuel bill at the same speed, or, alternatively, the possibility of increasing the speed by about two knots when occasion demands.

The reports of the various tank authorities have frequently indicated that the resistance of ship forms submitted for testing, presumably based upon the form of actual ships which was determined by unsystematic methods, is as much as 20 per cent greater than it would have been if the most suitable form as indicated by model testing methods had been adopted, and it would seem that there is wide scope for the extension of surgical methods, similar to those which have been described, to ships showing poor propulsive results, with an adequate return from the money spent upon the operation.



Performing an operation on a tanker—the launching of a new center section for the Anglo-American Oil Co.'s tanker Saranac at an English shipbuilding yard

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Imperial Brass Mfg. Co., Chicago, is making a Sette faucet for steel drums or barrels, having as its feature a metal-to-metal seat which, the company claims, will hold oil, gasoline, kerosine, alcohol and many other liquids.

Copper Line with Soldered Joints Saves 30% in Installation Cost

CLEVELAND

LABOR costs in installing piping from underground tanks to gasoline pumps were reduced more than 30 per cent recently in an installation of the National Refining Co. at Bedford, O., through the use of copper tubing and soldered joints.

The job was an experiment but the system of copper tubing and soldered joints had already been tried by Firestone Service Stores at one of its one-stop service stations in Toledo.

Cost of the material in the National Refining Co.'s job was slightly higher than the cost of galvanized steel pipe, said William A. Thibodeaux, construction manager of National Refining Co., but by using 1½-inch copper pipe instead of 2-inch as was used at Bedford would bring the material cost a trifle under that for 2-inch galvanized pipe with iron, screw joint fittings.

It is possible to use the smaller copper tubing, Mr. Thibodeaux said, because there is less friction in the copper tube system. Ells are eliminated and 45 and 90 degree bends are used instead. One ell in an iron pipe system, he said, created as much friction in the flow of gasoline as 20 feet of pipe. Gasoline pumps were found to work more easily with the copper tubing because the amount of line friction had been greatly reduced.

The cost of hooking up three pumps with tanks was $42 for the labor. The labor cost of hooking up three pumps to tanks with the galvanized pipe was usually $66 to $68, he pointed out.

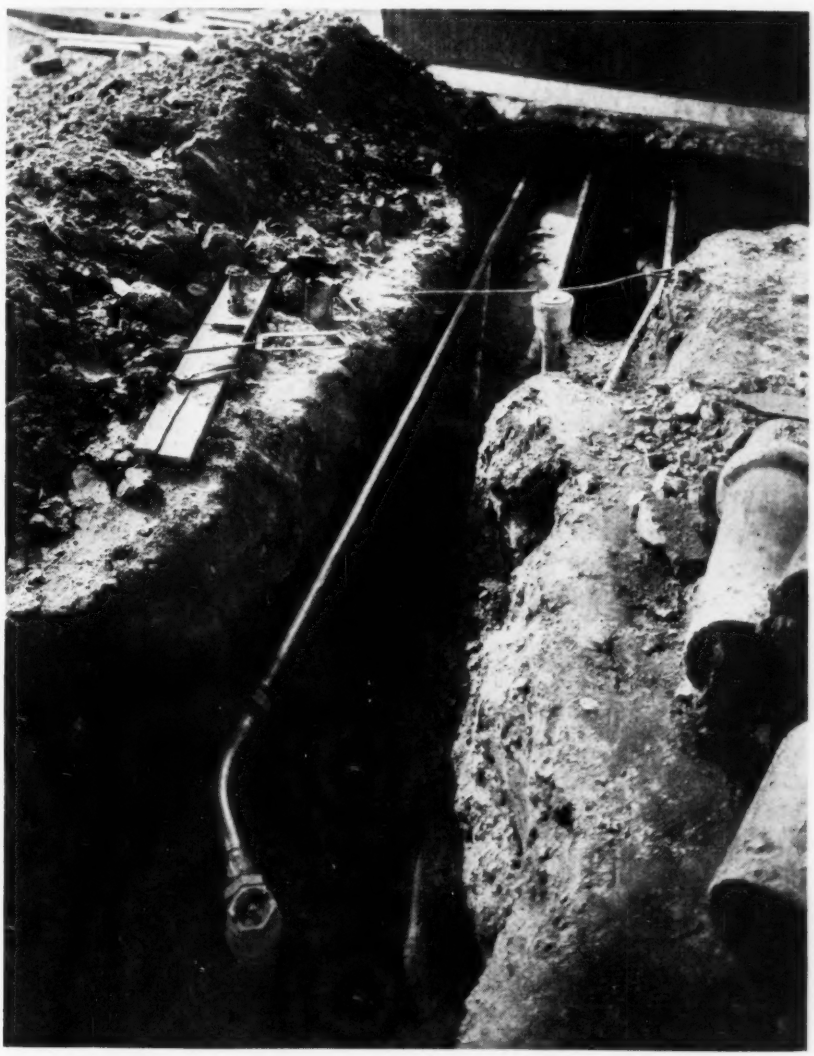
The tube and soldered joint construction is new as applied to service stations but it has been used in plumbing installations a long time, it is said.

The joints of brass are not threaded but are turned on the inside so they slip easily over the tubing. Inside each fitting is a ring groove. One hole is drilled through the fitting into the ring groove.

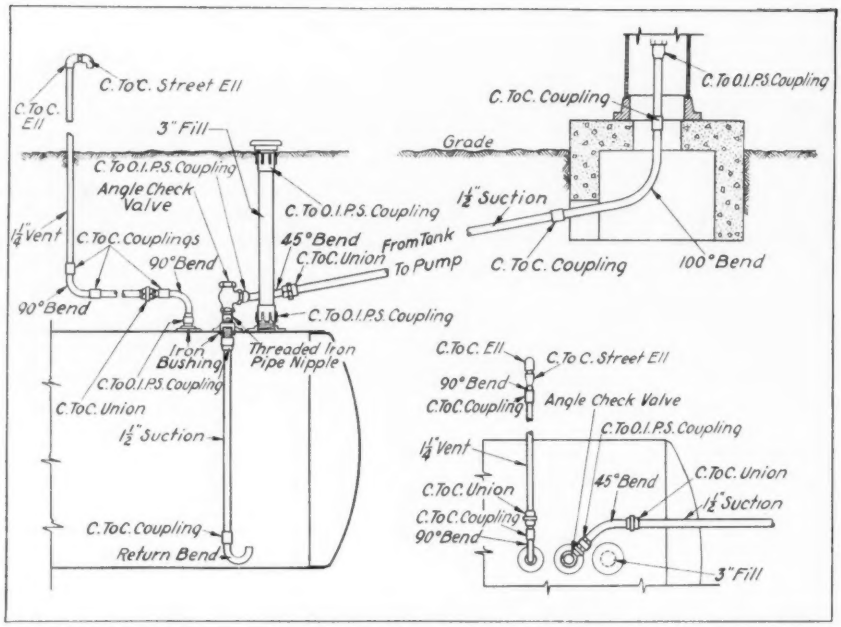
In making the joint, the end of the tubing is cleaned and smeared with a fluxing paste. The fitting is also cleaned and cleared of any small burrs. The tubing is then slipped into the fitting, the joint heated with a blow torch and solder wire inserted into the hole drilled to the ring groove.

The solder melts, flows through the ring groove and by capillary action is drawn into the small clearance between the tubing and coupling or other fitting.

Tests made by the Underwriters' Laboratories, Chicago, for Mueller Brass Co., Port Huron, Mich., manufacturer of the system, showed the soldered joints to have greater tensile strength than the cold drawn copper tubing in all but five of 56 tests.



Copper underground gasoline line with soldered joints in Firestone Service Stores one-stop station at Toledo, O. Note tools used in making installation on bank at left. Also note bend in copper line which eliminates much of friction which attends use of ells as in iron pipe installation to right of copper line



Sketch of installation using copper lines with soldered connections and some iron fitting with threaded connections. Parts marked "C to C" are copper to copper soldered joints; those marked "C to O.I.P.S." are copper to outside iron pipe size couplings

In the five tests where tubing was pulled from joints, the failure occurred at 10,050 pounds for 1¼-inch tubing, at 13,800 points for 1½-inch tubing, at 19,050 for 3½-inch tubing and 30,170, and 37,800 pounds for 4-inch tubing.

One 4-inch joint, according to the laboratories' report, withstood up to 57,500 pounds pull at which point the tube tore.

Small tubing withstood as high as 7700 pounds pressure before leaks occurred, according to the report. Only one leak developed in three tests of 1½-inch and that came at 3200 pounds per square inch.

No stocks or dies, pipe cutters, reamers or pipe wrenches were needed in making the installation of the gasoline lines at the service stations. As shown in the illustration of the underground work at the Firestone station the only tools were a pair of pliers, file, small scrapper, hack saw, flux, solder wire, and blow torch.

The only threaded parts of the line were unions and connections to pumps and tanks. One manufacturer, it is understood, is bringing out foot valve, line check valves and other gasoline line fittings to work into the tube and soldered joint systems.

In breaking up a line it is necessary only to heat the joints and pull them apart. In the case of lines that carry inflammable liquids like gasoline, those who have had experience with the system recommend the insertion of two unions or companion flanges in the line so the line may be cleared of gasoline before it is heated for breaking up.

It is said workmen can see as they proceed whether the system will be leakproof. At the National's station only one leak developed and it was found to have come from an improper cleaning of the connections before soldering. It was easily fixed, Mr. Thibodeaux said. Firestone adopted the system to eliminate bothersome gasoline line leaks.

Spark Plug Tester Helps Sell New Sets

CLEVELAND.—If your customer complains about the gasoline not being what it used to be—

Ask him how about the spark plugs?

Or, if his car is a new one, glance at his speedometer and if he has driven 10,000 miles—

Ask him how about the spark plugs?

Have they been changed recently? If not, suggest that he step this way into the corner where you keep your spark plug testing machine. Show him how a new one fires and then how the one from his car fires. Nine chances out of ten, he will buy a new set and drive away again, a contented customer.

That is what service station men have found at a station of the Standard Oil Co. of Ohio equipped with a testing machine made by the Wayne Equipment Co., and selling under the slogan of "Seeing is Believing."

Although the machine is still on an experimental basis at the Standard of Ohio stations, two other Standard companies—the Standard Oil Co. of New Jersey and the Standard Oil Co. of Pennsylvania—have been using them for some four months.

A new plug is inserted into the testing machine to show the customer how a new one fires. It makes plenty of noise, like a dentist's drill, and it crackles with blue-white sparks. Seventy pounds air pressure is necessary for testing spark plugs of most cars generally, operating men at the station said.

Then, the spark plug from the customer's car is next inserted into the machine and usually, when he actually sees the dull, short, lifeless sparks and hears the feeble noise, he is sold on a new set.

Such is the experience so far with this machine at the East 89th and Carnegie Ave. super service station of the Standard of Ohio.

"Of course, this machine is still on an experimental basis," Sam H. Elliott, assistant manager of the service station department, said. "It was put in as a sales help for spark plugs and to actually be a service to our customers. Any customers, you know, would be glad to know of a defective spark plug in his car which may prevent him from getting full mileage out of his gasoline, and to prevent wear and tear on his car."

Once you get the customer to walk over to the machine, it does its own selling, station men point out. The attendant gives no high pressure sales talk, but simply lets the customer see how a new one fires compared to the old one out of his car.

N. P. N. Staff Photo

Batteries usually go dead at the most inconvenient place, but the L. V. White Co., Kalamazoo, Mich., sells by having the service truck bring out a rental

Oil Stations Sell Batteries In Customer's Garage

By E. L. Barringer

N. P. N. STAFF WRITER

KALAMAZOO, Mich. "WHEN your battery balks dial Dixie 6111."

That one line advertisement appearing frequently in the local news item column in Kalamazoo daily newspapers is the merchandising medium by which the L. V. White Co., parent company of the Dixie gasoline movement, sells automobile batteries.

The advertisement serves two purposes one, of course is to sell batteries. The other is to impress upon every car owner's mind that Dixie service stations sell batteries, and should be considered when the old battery goes dead.

Right there is the nub of the White company's battery merchandising plan.

Dead batteries, like flat tires, seldom develop in a convenient place. The battery has a knack of expiring while the car is in the garage at home, and not when the car is in a battery shop.

The L. V. White company also realized that a customer cannot anticipate the purchase of a battery. A station man may note the smooth tread of a customer's tire, turn in a report, and subsequently sell a tire. The customer can anticipate the need of a tire, but a battery is serviceable or it is not. There is no half way mark. All the calls and salesmanship in the world will not sell a battery until the customer's battery goes bad.

This is the foundation of the company's battery business. As H. H. Sharpsteen, sales manager of the company, explains it, the sale of batteries takes a different tack than other lines of merchandise.

"We want to drill into the minds of our customers that we sell and repair batteries," he continued. "Take the case of the man who climbs into his car in the morning to drive to work. He steps on the starter, and there is no response.

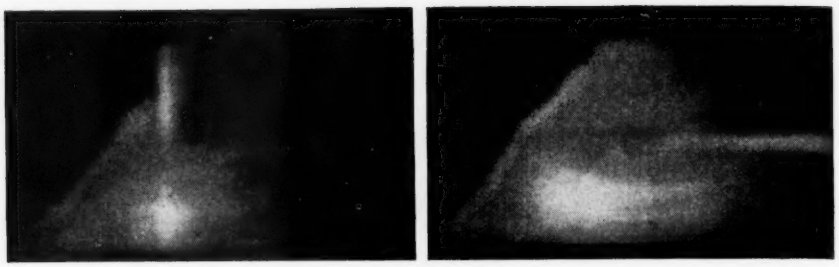
"After he gets through cussing he begins to think of some place that will repair his old battery, or where he can buy a new one. Right there is where we want him to think of his favorite Dixie service station.

"We want Dixie service stations to stand out as he mentally thumbs over his card index of battery shops," he concluded.

About the first of the year White company began selling Vesta batteries. The company already had 12 service stations in Kalamazoo for sales outlets, and a management keyed to today's merchandising tempo of selling anything and everything that logically can be sold at a profit through a retail store that has been selling gasoline, motor oil, and lubrication service.

With these 12 retail stores (the L. V. White company does not think in terms of gasoline service stations but in terms of retail outlets the central point of the system was organized at the bulk plant, side of the main station.

C. F. WORMALD, an electrician by trade, with a bent for hunting up ignition trouble, was placed in charge of the mechanical operations of battery merchandising. His stock of batteries and repairing and recharging equipment was set up at the bulk plant. Then the 12 stations were brought into play.



At the left is a photograph of combustion where knock occurs; at the right, a photograph of combustion where flame-front spreads smoothly. These photographs, made through a quartz window in a cylinder head, are continuous exposures on a moving film; hence the top line indicates the edge of the flame as it progressed from the spark-plug. The distance laterally is the time elapsing, and the light area below shows the after-glow. The slant of the top line, therefore, represents the speed of flame-front travel. When knock occurs, this is practically vertical, representing almost instantaneous combustion of a portion of the charge.

1/112 OF A SECOND

is a long... long... time!

AT 750 revolutions per minute, gasoline combustion tal es place in approximately 1/112th of a second.

Yet knock testing engines prove that when this combustion is accelerated to the point of almost instantaneous explosion, the energy generated is much less efficient. Can there be so much difference between 1/112th of a second and instantaneous action? There can be. There is.

During 1/112th of a second at 750 r. p. m. the piston moves through *40 degrees* of crankshaft rotation. This is a long time in the cycle of an engine. It is perhaps a thousand times longer than the period during which detonation occurs.

Of course, knock does not usually occur until a large portion of the charge has burned at the normal rate of speed. Therefore, a fuel to operate an engine without the power-loss and harmful effects of knocking must be of sufficiently high quality to resist the strain of the peak pressure of normal combustion in that engine.

What causes knock

To illustrate this, let us consider the process of combustion in an engine of conventional design. Figure A represents a combustion chamber of rectangular cross section, containing a mixture of air and fuel which is divided for the purpose of the illustration into ten equal parts. When this charge is fired by the spark-plug, that portion which surrounds the plug is first to be burned. As it burns, the temperature, volume and pressure increase, thereby compressing the unburned portion of the charge, as shown in figure B.

As the burning spreads, both the burned and the unburned portions of the charge are subject to steadily increasing pressure and each additional fraction of charge that burns contributes to the total pressure. This continues, as illustrated in figures C and D, until the last portion of the unburned charge, which we originally took as occupying 1/10th of the volume of the combustion space, is compressed to occupy approximately 1/30th. At the same time, the surrounding temperatures have been greatly increased; particularly if carbon formations are present, since they retain heat from previous combustion, thereby

contributing enormously to the temperature.

Fuel must withstand *this* condition to operate without knock.

Critical point

If the temperature and pressure of the highly compressed last portion of the charge to be burned exceeds the critical value for that fuel, detonation results. Such a critical condition is inherent in any given fuel, and may result in detonation at any time between the firing of the spark-plug and the time the last increment of the fuel has been burned.

The sooner the detonation takes place, the greater the violence of the knock and the greater the loss in power to the motor; but a fuel that detonates even near the end of combustion causes rough operation and overheating that result in substantial performance losses.

Added power

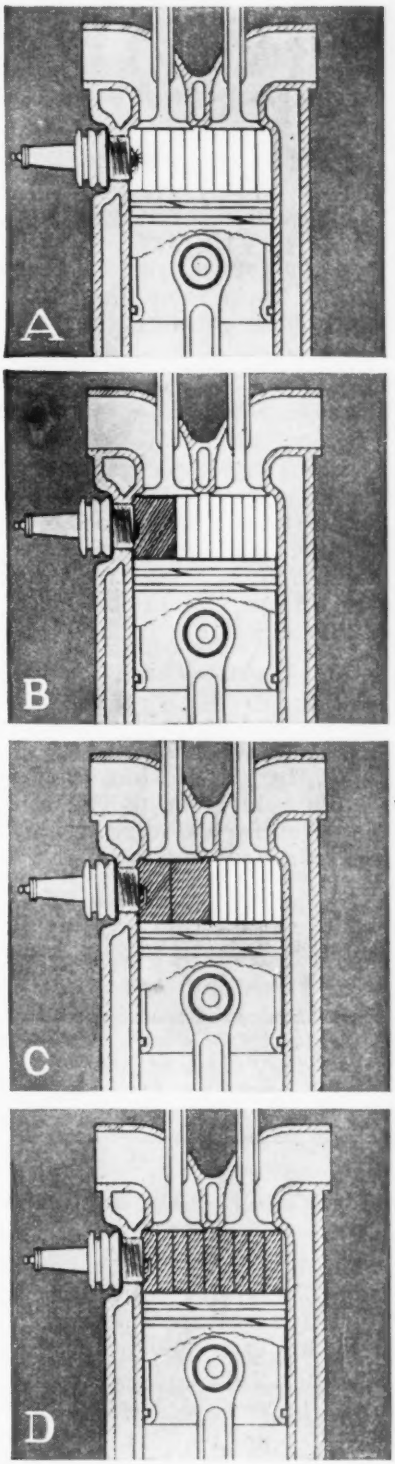
Only after a motor has supplied the power necessary to overcome all operating and friction losses is power available for motivation; and only after the motor supplies all motivating power for whatever speed the car is traveling is any power available for acceleration or hill climbing.

It is power over and above ordinary needs that brings outstanding performance. Manufacturers who design motors to take advantage of the anti-knock qualities of Ethyl Gasoline are free to use the higher compression pressures which develop this added power—and incur no penalties of increased manufacturing costs or increased weight.

Permissible compression

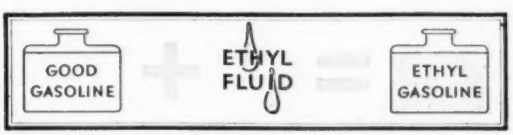
The minimum standard of all Ethyl Gasoline is sufficiently high in anti-knock quality to avoid detonation in motors that develop compression pressures considerably higher than the present average of 95 pounds.

The desired fuel is here, and thoroughly distributed, for those who wish to take advantage of the increased performance of higher compression. How will your product compare with the competitive performance of next year? Our engineers will be glad to work with you. Ethyl Gasoline Corporation, Chrysler Building, New York City.



These four figures represent the progress of combustion in an engine of conventional design and illustrate how burned gases increase the pressure before the combustion of unburned portions. A similar increase in temperature inside the cylinder is also taking place between the time the charge is ignited and the time the last portion is burned.

WITH ETHYL
CREED OF ANTI-KNOCK COMPOUND
ETHYL GASOLINE CORPORATION
NEW YORK, U.S.A.
Controls Combustion



The active ingredient used in Ethyl fluid is lead

More than 250,000 pumps now bear the Ethyl emblem.

© E.G.C. 1931

ETHYL GASOLINE

Signs were placed at the stations announcing that the company now sold battteries and a cut away section of a batttery for display. At two of the main stations there are displays of the complete line of batteries.

The customer is being brought to consider his favorite station as a battery store, as well as a place to buy petroleum products. If, and when, he needs battery service all that he had to do is telephone his favorite Dixie station.

From the station the call will be relayed to the bulk plant. Out goes the service car, a motorcycle with a side car, equipped to service gasoline, oil and air to stranded customers. At the rear of the gasoline tank on the side car, in the space customarily reserved for the can rack on full size tank trucks, is the battery delivery shelf.

Rental batteries are delivered to customers by the service car, and the old battery returned to the bulk plant. The old battery is tested, and the customer is informed as to his needs for repair work, recharging, or a new battery.

Station men operating the service car have been trained in fundamentals of battery servicing. They can change batteries in a car, and handle any emergency work after Mr. Wormald has left the plant.

Emergency service is available from 6 a. m. until midnight every day.

The men at the stations also help merchandise batteries. Whenever they put water in a battery they use the opportunity to find out if the customer is getting good service. Any tips on prospective customers are turned in to the manager of the battery department.

Just selling and repairing batteries is a small part of the White company's battery merchandising. The customer is not seeking a new electrical plant for his car. He wants to be free of any trouble with his battery and ignition system, and in the last analysis this is what the company sells.

Mr. Wormald is a native of England and he has a bent for doing the job right. If he finds a strap on the battery carrier broken he repairs it. Cable fastenings are tightened. When he lets a battery job go he wants the job to be thorough.

All these service features, such as cleaning the terminals, fastening cables and straps, are done if the cost in materials and time is not great. Any major repair work of course is called to the attention of the customer.

Although the battery department of the L. V. White company is just closing its first half year of service some observations of Mr. Wormald are pertinent.

He finds that out of every 10 repair jobs there will be the sale of one new battery.

Battery customers also come under three general classifications. There is the customer who knows what he wants, is willing to pay a fair price, and wants quality.

Then there is the customer, whose old batttery is dead, and he wants a "cheap" replacement —"cheap" in price, but a battery with a guarantee.

And the third group is represented by the customer who needs battery work but wants it at the lowest possible cost, whether it is a repair job, or a new battery.

In volume, the second grouping heads the list. Most of the customers want a low priced, guaranteed battery. Second is the lest grouping that wants to get out as cheaply as possible, and the buyer who weighs quality with price is third.

ON THE LAZY BENCH

We're Going to Ask John About This—

The late William Rockefeller used to tell with delight a story illustrative of the financial genius of his famous brother, John.

"When John was a little fellow," he would begin, "a so-called Indian doctor visited our town with a cure-all. The doctor, to get trade started, took out a bright new silver dollar and said he would auction it off.

" 'How much am I bid,' he said, 'for this bright silver dollar?'

" 'But the crowd was cautious, silent, suspicious. No bids were made.

" 'How much am I bid?' shouted the Indian doctor. 'Come, come gents! A nickel? A dime?'

" 'I bid a nickel, piped John D. Rockefeller at last.

" 'The dollar is yours, boy,' said the doctor. 'Hand up your nickel.' "

" 'Take it out of the dollar,' piped little John D., 'and gimme 95 cents change'."

—Skelly News
Skelly Oil Co.

* * *

Mrs. Goldberg and Mrs. Silverton gossiping over the back fence:

"I heard it today dot Abie Kazinsky vos keeping a budget."

"Vot!—und his vife, too?"

—Pure Oil News
The Pure Oil Co.

A state highway is a magnificent stretch of road lying between two detour signs.

—Union Oil Bulletin
Union Oil Co. of California

* * *

Harry: "I'm forgetting women."

George: "So am I. I'm for getting a couple as soon as possible."

—Pure Oil News
The Pure Oil Co.

* * *

The gloom-dispenser is very pessimistic these days.

He sees the rich getting richer, the poor getting poorer, the reds getting redder, the blues getting bluer and the "wets" getting "drier."

—Lorcco Diamond-Arknatco
Arkansas Natural Gas Corp.

THE TANK CAR STATION

Good Will for the Trackage Station is Difficult to Acquire; Nationally Advertised Oil Signs Give Customers Confidence

Article 3

IN ADDITION to the common business problems of management, finances, and quality of products, the tank car station has some special problems of its own.

One of the chief handicaps peculiar to the tank car station type of business is the inability to build good will. This statement was made by a successful tank car operator, who relates the following experience to illustrate his point:

"Several years ago our competitors obtained an injunction forcing us to sell at the posted price. We were successful, of course, in getting the injunction set aside but while there was no difference in price we lost practically all of our customers.

"That experience proved to me that we have no good will value, and I consider my business as lacking this element," he concluded.

The tank car station has built its business on a price appeal. As long as the station can stay a considerable distance in price below oil company stations, or competing price stations, it gets the business. As this gap in price closes up the volume diminishes.

The price buyer is apt to be more critical than his brother who buys on quality. A different type of merchandising is required for each class. Once the quality buyer is "sold" on a store or service station he is apt to remain put, providing quality of merchandise and service continue to meet his approval. But the price buyer by the very fact that he is looking for a low price is not a permanent customer.

The tank car station also is subject to competition from within its own class. In any given community there is just so much gasoline sold in a day. And a certain portion of this business is placed on a price basis.

If there is one tank car station selling below the retail market in this community it will be in a position to bid for all this business. The second station, and succeeding ones, will cause a diversification of sales of a price basis.

In the cities studied by NATIONAL PETROLEUM NEWS the tank car stations have not encroached on each other's territory to any great extent. They were fairly well scattered over the city.

From how great a distance a tank car station will draw business is an unanswerable question. By locating on main highways the tank car stations have sought to extend their territory beyond the limits of the local shopping area. These locations provide an opportunity to attract sales from passers-by, probably living miles farther out, yet convenient to the station since they pass in going to the business district.

A TANK car station operator in Louisville reported he had some customers driving from four to five miles, from across the city, to patronize his station. This is probably an unusual case.

Although a considerable period of time will pass before results will be known on the third grade of gasolines at oil company stations some preliminary reports indicate that price appeal is strong now.

One major company putting in a third grade pump in a large mid-western city anticipated an increase in sales in residential districts where price competition had existed for some time. There was some doubt whether the third grade would be accepted in better residential sections.

In spite of this doubt the third grade was installed over the city. Volume increases in a better residential district were regarded as amazing. This would indicate that these customers of the third grade pump in the better sections had been traveling some distance to buy on price.

IN ANOTHER instance a small jobbing company found that sales of the third grade gasoline were equal to those of the other two grades combined.

The tank car station also is limited in the number of items it sells. Gasoline and motor oil constitute the principal sales items. Lubrication service is available at some tank car stations, but seldom are accessories, tires, or batteries sold.

Of these 24 larger tank car companies in 10 cities 10 had lubrication service, and only one sold accessories.

Contrast this picture with the major oil companies that have a diversified interest in petroleum through producing and refining operations. The jobber too has a diversified line in the various lubricants, and also in tires, batteries and accessories.

The tank car station is essentially a sales outlet, and has not extended itself to any great extent into the servicing field. Profits are made through buying and selling gasoline and oil, and not in manufacturing, producing, or servicing.

In this sales field the tank car station has another handicap in that it is not selling branded gasoline. And the tendency of the past few years

One of the A. W. Collins Oil Co. stations in Detroit. The sign board on the drive at the left, has a picture of a train, with the slogan "direct from refinery to YOU." Estimated cost of this station $9400, building $4500, lifts and installations $600, pumps $750, air standards $250, tanks $350, pipe work $550, floodlights $250, driveway $1400, fence $125, heating and toilets $400, unloading line $150

has been in a swing towards brands, either through integrated oil company stations or through the jobber distributing a brand.

A check of gasoline tax reports for the five largest tank car companies in one city indicated that the operators bought their gasoline from various sources. Over a period of 25 months, ending with January 1931, only one of the five companies purchased gasoline consistently from one source for any great period.

In this case the tank car operator purchased all his gasoline for 11 consecutive months from the brokerage department of a major oil company, and the tank cars, according to the tax report, originated from a refinery of another major oil company.

The largest tank car operator during this period purchased all his gasoline from one source in four months, only two of these being in succession. During the other months gasoline was obtained from various sources, ranging from two up to five in any one month.

For the entire period this operator averaged 3 1/25 sources a month. The figure was obtained by adding up the total number of sources for each month and dividing by 25. On this basis the lowest operator averaged 1 3/25 sources a month.

Tank car receipts for these five tank car operators indicated a wide variety of sources for gasoline. Some came from the Mid-Continent district, some from Pennsylvania, but the majority came from refiners in the Central States area.

By adding the number of sources for each month the largest operator in this city was found to have purchased a total of 76 times in the 25 months; 63 times from brokers and 13 times from smaller refining companies.

During this same period another tank car company purchased gasoline 34 times; 16 times from major oil companies, 14 times from brokers, and 4 times from smaller refining companies.

Available information from other cities indicates that tank car station operators are buying generally on the open market.

Virtually all the tank car service stations sell a nationally advertised brand of motor oil. This oil is usually purchased in barrels from the local oil distributor. In addition most tank car stations sell their own brand of oil, usually Pennsylvania grade, at 15 to 25 cents a quart.

The nationally advertised oil brands sold in cities surveyed by NATIONAL PETROLEUM NEWS were Texaco, Quaker State, Veedol, Mobiloil, Burham, Wolf's Head, Pennzoil, Oak, Kendall, HyVis, En-Ar-Co, Mona-Motor, Deepwater, Socony, and Standard of Louisiana.

These nationally advertised oils are sold at the full price.

In several cities, notably Detroit, lubrication service is used as a trade puller. In Detroit this service is free with a crankcase drain. Other stations that have lubrication service charge $1.00.

The largest number of oil brands found at one tank car station was six; five nationally advertised oils and the company's own brand.

Operators report that sales of nationally advertised oils are insignificant. Their own brands sell better. One operator took on a nationally advertised oil and after a period of selling from 6 to 8 gallons a month he discontinued it.

Another tank car operator reported that having a certain nationally advertised oil helped his gasoline sales. This company had a station on a main highway from one of the best residential sections of the city to the business district. Many business men in this district drove to work, and this oil brand was sold by most storage garages.

By having this same oil in his station the operator believed that motorists from this residential section would drop in, remembering that oil sign from their storage garage in the city.

The tank car stations selling nationally advertised oils keep their signs prominently displayed.

How can the oil companies meet the competition of the tank car station? That is a very pertinent question that every company has sought the answer. So far there have been three solutions.

Since the third grade gasoline movement has acquired momentum in the middle west this seems to be the answer at this time. The oil industry in this section of the country recognizes that there is a class of gasoline buyers which seeks low price, and the tank car station has sought to supply the gasoline for this class.

Now the oil companies are diversifying their gasoline lines to provide a motor fuel for each of the three divisions of buyers, the price, middle class, and quality buyer.

The third pump idea has been used in several cities to combat the price cutting station, but results from a wide spread area will give a more accurate picture as to the success of this method.

The time honored defense in case of reduced prices is to cut prices. As the oil company station price is lowered less room is left for the price cutting station to be under the general retail market.

A general price cut though has its effects that are beneficial to the price cutter. A tank car station operator, who had years of previous experience in marketing oils, tells a story to the point.

"When I opened my first tank car station it was difficult to convince our customers that we could sell for less," he began.

"We had to explain to our customers our method of operations and why it saved money. They were skeptical of our goods. And in that first month sales were not encouraging.

"Then the turn came. Dealers of major oil companies near our station were alarmed, and down came their prices to our level. That was the 'break' that gave us our opportunity.

"Customers saw that even the big oil company brands could be sold for less, and they had their first taste of cut prices. No longer were they skeptical of our station and from the second month on our sales mounted until the first year's total sales approached 100,000 gallons."

The third method of meeting tank car station competition is a combination of keeping the service station price within limits that do not invite price cut station, improving the quality of products, and building business in place of worrying about the price cutter.

This method seems to be the most successful one, based on information available prior to the general adoption in the middle west of a third grade of gasoline.

Cincinnati and Dayton, O., were the cleanest cities of the 10 studied by NATIONAL PETROLEUM NEWS. And these cities were managed by the oil companies under the third method of meeting competition.

Tank car operators in these cities are recognized by other oil companies, and the tank car operators in turn speak highly of oil company executives.

In place of underselling the market 2, 3 or more cents a gallon tank car stations in these cities are only 1 cent under. Sales have been lost, operators report, but the increased revenue per sale more than offsets the loss in volume.

In Dayton six of the 12 tank car companies are selling at the established market, the others being 1 cent under. In Cincinnati only one company is 2 cents under.

Operators in these cities are members of local oil men's association, and of the state organization. They are proud of their memberships.

These results were obtained by the leaders in the oil industry merchandising their products through putting a better grade of gasoline on the market, backed by aggressive advertising campaigns. Effort was directed to keep the quality and the middle class buyer sold and to wean the price customer to the higher classification.

Damaged Bodies and Sick Tires Made Well at One-Stop

ST. JOHNSBURY, Vt.

A SPECIAL eight-page newspaper edition announcing an automobile show and charity bazaar was devoted almost entirely to announcements of the opening of a new one-stop of the C. H. Goss Co. here, and to advertisements of the products and services available at that station.

Automobiles, including the Packard, Hupmobile, Dodge and Plymouth, were on display for two days at the showrooms of the Goss company's new station. All admittance proceeds were given to charity.

Besides handling petroleum products and the four above mentioned cars, the station is equipped for greasing, auto cleaning and repair work.

There are two hoists in the lubrication department and a Chek-Chart to insure a thorough greasing job.

Battery charging, brake testing, tire mounting, polishing and simonizing are among the services obtainable. Batteries are charged in eight hours instead of the 18 or 20 usually required, the company says.

Brake testing is done by a Raybestos brake machine and drum lathe.

Another modern piece of equipment is the tire spreader and mounter, operating electrically. The workman is able to see that the tire is mounted properly. The machine handles truck tires of any size, a service heretofore available at only a few stations in Vermont, it is said.

The station is of brick, concrete and steel, equipped with a sprinkler system for fire protection. The first floor is portioned off into the various auto service departments. Five folding doors permit entrance of cars. Walls are of white enamel and many windows furnish plenty of light.

Merchandising and Jobbing Ideas Marketers Are Practising

By E. L. Barringer
N. P. N. STAFF WRITER

AN EXAMPLE of intelligent work on the part of a service station salesman came to our attention recently while driving with G. G. Chase, tire manager for the Pocahontas Oil Corp., Cleveland, to some of his company's stations.

We pulled into a Pocahontas station on the west side of the city, and Mr. Chase parked the car beside the building, out of the traffic lanes. Before he was ten feet away from the car an attendant was on the job.

The attendant inspected the service record showing dates and mileage of lubrication jobs. Then he drove the car to the gasoline pump, filled the tank and checked the oil. All this of course without a word to Mr. Chase, except the greeting.

From the gasoline pump the car was driven on a lift.

"Your record does not call for a lubrication job yet, Mr. Chase, but the mileage indicates a change in transmission and differential lubricant and since spring is here we can flush out the radiator. It will take about seven minutes for the job," the attendant said.

You are right—that is one of the company's best sales stations in the city.

* * *

Novelty Booklets Sell Petroleum Products

Booklets of matches have outgrown their time honored purposes of providing fire to light cigars, cigarettes, and pipes. Now they help sell petroleum products.

Last summer the Smith Oil & Refining Co., Rockford, Ill., used lip stick booklets as novelty advertising pieces at service stations. The package resembled a booklet of matches, only the tips carried the necessary coloring that returns the bloom of youth to feminine lips.

There was great demand for these lip stick booklets from customers, and after the supply was exhausted requests came in. And late in the season a letter asking for some lip stick booklets was received from Texas.

So with this experience the Smith company turned to booklets again for novelty advertising while exhibiting core oil at a recent foundrymen's convention. These booklets were in the form of matches, and were antiseptic pencils.

The company's convention slogan was "Cut your losses with our core oil, stop your cuts with these antiseptic matches."

* * *

Illinois Jobber Dedicates Room for Sales Meetings

The Johnson Hi-Test Oil Co. this spring completed a large addition to its main office in Freeport, Ill. The additional floor space provides a room used exclusively for sales meetings and educational work.

Harold W. Johnson, head of the company, points with pride to the sales meeting room which he believes is the first room of this type among mid-western marketers.

The room has a capacity of 100 persons. It is equipped with blackboards.

The main sales get-together is held each spring in Freeport, and all sales employes are required to attend. One day cleans up all the sales work for these meetings, but on account of the large number of employes the meeting is repeated for two or three days.

Jobber Makes Station Men Earn Bonus

The Hart Oil Co., Rockford, Ill., has a novel bonus plan for rewarding sales efforts of service station employes. The plan actually involves no additional outlay of money in the payroll account, yet it has all the advantages of an incentive for greater sales work to win extra compensation.

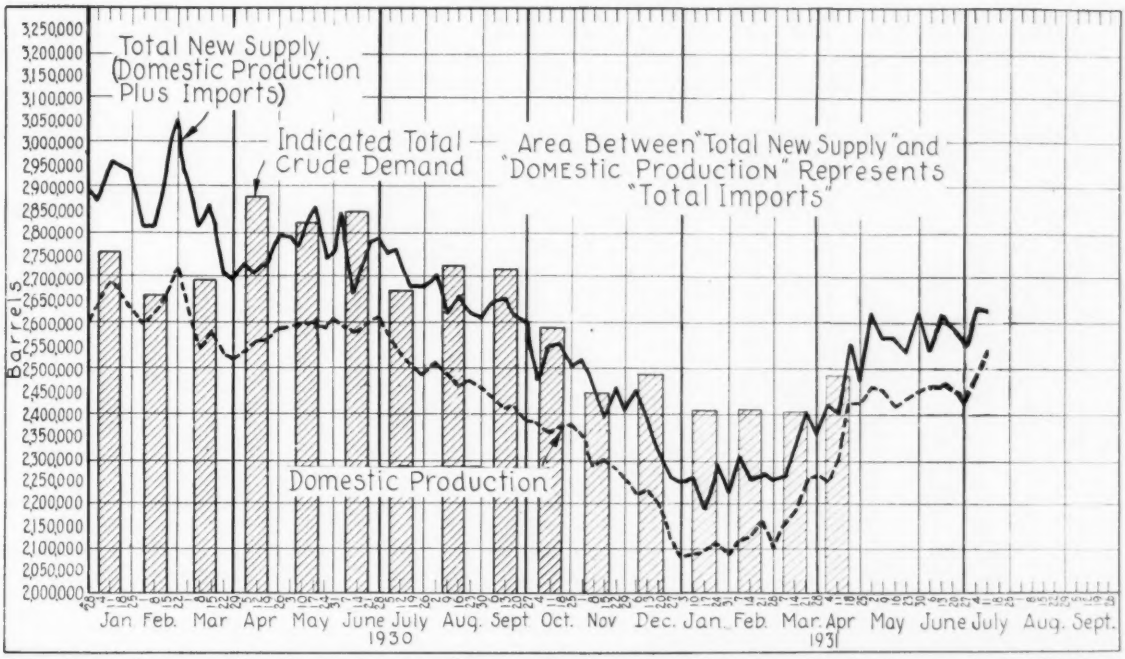
Each station employe receives a fixed amount as a salary each month. This is the base pay, and in itself is an amount running into three figures for each man.

Each month there are 35 bonus awards to be won by the eight station employes. Thus, each man has an average of $4\frac{3}{8}$ bonuses a month. One bonus is for the men increasing their sale of high test gasoline over the previous month, on a percentage basis. There are five awards in this class.

Similarly there are bonuses for increased business in lubrication, motor oil, and so on. Bonuses are won by individuals, not by stations. Furthermore, if any man is on the bottom of the bonus list for any three months out of six he automatically loses his job, and the men know this.

From the company's viewpoint the pay roll account is a fixed sum. Part of this account goes out in the form of fixed wages to the men. The balance, also a fixed amount, is divided under the bonus system according to the sales effort as represented by increased sales over the previous month.

Review of Late Production News



This chart shows crude oil supply according to the American Petroleum Institute reports (solid line) in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns).

Oklahoma, Kansas

WITH the new price in Oklahoma and Kansas, principal thought of operators now is the cutting down of production.

Producers in the Oklahoma City field, who have been enjoying a greatly increased demand for oil the past month, are leading in the shutting in of production in Oklahoma. A mass meeting of producers and royalty owners in Oklahoma City revealed a large sentiment in favor of keeping production off the market until the price is restored. It is felt that not much time would be needed, as there is a strong demand for everything that can be produced, under proration.

California

CALIFORNIA production news for week was featured by completion of a gusher type well in Kettleman Hills, and continued promising field reports from deep tests drilling or standing suspended in the Huntington Beach field.

Although several wells along the axis of the Kettleman structure were completed during the week to raise the field's actual daily production above the 100,000 barrel mark, Shell Oil Co.'s completion was the most interesting. This well is on the east edge of the field, only just within the area considered definitely proven by engineers of the Kettleman North Dome Association.

Because of its position out from the center of the field it is bottomed at 8807 feet and is considered to have proved the structure for at least one quarter of a mile beyond the "redline" limits set up by the association. During the initial 24 hour gauge this well flowed at a rate of 6590 barrels of 34.4 gravity oil and between five and six million cubic feet of gas.

Daily Average Production, Important Districts, American Petroleum Institute Figures. By Telegraph.

	Week Ended July 11 Barrels	Week Ended July 4 Barrels
Oklahoma City	259,400	214,450
Total Okla.	632,450	591,600
East Texas	381,550	351,950
Total Texas	987,300	970,050
California	523,000	506,600
East of Rockies	2,021,650	1,975,900
Total U. S.	2,544,650	2,482,500

Texas, New Mexico, Louisiana

ONLY at Hobbs, New Mexico, and in the Yates field, West Texas, where flowing wells are exploited at minimum expense under proration, were southwestern operators able to produce crude oil at a profit after price reductions posted generally, July 8.

Plans for shutting down wells, where possible without damaging properties from water encroachment on partly depleted sands, went ahead in a number of instances. The program was expected to show gains.

East Texas set new high marks of daily production and distribution for the week. Production reached 381,543 barrels daily and distribution 366,381 barrels, indicating storage accumulation in the district of 15,162 barrels daily. Pipelines handled 226,266 barrels daily, local refineries 25,901 barrels and tank cars 114,214 barrels.

TORONTO.—On July 23 Imperial Oil Refineries, Ltd., reduced Ontario crude 15 cents, making new price of Petrolia $1.60 and Oil Springs $1.67 per barrel at the well.

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended July 10 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended July 10
Plants Reporting	10	23	23	10	10	76
Da. Av. Cap. (bbls.)	94,000	162,500	107,400	71,500	60,700	496,100
Da. Cracking Capacity	53,200	64,600	23,100	26,250	31,700	198,850
Da. Av. Crude Runs	78,101 + 8.1	122,196 + 12.8	77,123 + 26.6	20,367 + 35.0	53,459 + 19.4	351,246 + 16.5
Da. Av. Other Oil	5,923 — 18.9	5,325 + 70.9	2,248 — 19.8	.....	17,329 — 3.3	30,825 — 2.8
GASOLINE—Gallons						
Stocks, July 3	17,256,000	41,532,000	18,105,000	17,528,000	3,415,000	97,836,000
Prod. 7-3 to 7-10	13,549,000 + 6.8	19,946,000 + 12.3	11,639,000 + 31.3	2,166,000 + 43.2	7,728,000 + 12.7	55,028,000 + 15.4
Ship. 7-3 to 7-10	16,633,000 — 3.1	20,965,000 — 8.1	12,017,000 — 2.8	2,315,000 — 30.4	6,815,000 — 6.9	58,745,000 — 6.7
Stocks, July 10	14,172,000 — 17.9	40,513,000 — 2.5	17,727,000 — 2.1	17,379,000 — 0.9	4,328,000 + 26.7	94,119,000 — 3.8
Ratio Sales to Prod.	122.8%	105.1%	103.2%	106.8%	88.2%	106.8%
KEROSINE—Gallons						
Stocks, July 3	10,149,000	13,556,000	2,589,000	29,000	1,201,000	27,524,000
Prod. 7-3 to 7-10	2,463,000 + 5.5	2,077,000 + 29.7	864,000 — 1.5	.....	1,599,000 + 2.4	7,003,000 + 9.9
Ship. 7-3 to 7-10	2,259,000 + 15.8	2,037,000 — 7.7	896,000 + 92.3	5,000	1,777,000 + 16.1	6,974,000 + 13.3
Stocks, July 10	10,353,000 + 2.0	13,596,000 + 0.2	2,557,000 — 1.2	24,000 — 17.2	1,023,000 — 14.8	27,553,000 + 0.1
Ratio Sales to Prod.	91.7%	98.1%	103.7%	.....	111.1%	99.6%
STOVE DISTILLATE—Gallons						
Stocks, July 3	1,814,000	9,217,000	387,000	55,000	31,000	11,504,000
Prod. 7-3 to 7-10	413,000 — 11.0	1,087,000 — 3.5	58,000 — 50.0	.....	77,000 + 92.5	1,635,000 — 6.4
Ship. 7-3 to 7-10	379,000 + 24.3	380,000 + 20.3	132,000 — 18.0	8,000 — 20.0	71,000 + 65.1	970,000 + 16.2
Stocks, July 10	1,848,000 + 1.9	9,924,000 + 7.7	313,000 — 19.1	47,000 — 14.5	37,000 + 19.4	12,169,000 + 5.8
Ratio Sales to Prod.	91.8%	35.0%	227.6%	.....	92.2%	59.3%
GAS OIL—Gallons						
Stocks, July 3	6,085,000	45,121,000	3,788,000	3,893,000	10,466,000	69,353,000
Prod. 7-3 to 7-10	1,076,000 + 12.0	3,471,000 + 43.7	476,000	285,000 — 2.1	1,225,000 — 3.5	6,533,000 + 47.6
Ship. 7-3 to 7-10	773,000 + 42.1	2,275,000 +113.2	304,000 — 12.9	305,000 — 72.2	1,235,000 + 24.7	4,892,000 + 20.8
Stocks, July 10	6,388,000 + 5.0	46,317,000 + 2.7	3,960,000 + 4.5	3,873,000 — 0.5	10,456,000 — 0.4	70,994,000 + 2.4
Ratio Sales to Prod.	71.8%	65.5%	63.9%	107.0%	100.8%	74.9%
FUEL OIL—Gallons						
Stocks, July 3	16,993,000	62,528,000	71,496,000	31,331,000	19,966,000	202,314,000
Prod. 7-3 to 7-10	7,682,000 + 17.6	6,482,000 + 12.5	8,872,000 + 19.3	1,879,000 + 40.5	5,167,000 + 2.0	30,032,000 +15.1
Ship. 7-3 to 7-10	5,764,000 + 11.0	6,392,000 + 50.8	4,748,000 + 5.8	2,956,000 — 10.1	5,355,000 + 1.7	25,215,000 +12.2
Stocks, July 10	18,911,000 + 11.3	62,618,000 + 0.1	75,620,000 + 5.8	30,254,000 — 3.4	19,773,000 — 0.9	207,181,000 + 2.4
Ratio Sales to Prod.	75.0%	98.6%	53.5%	157.3%	103.6%	83.8%

Gasoline Produced by Various Methods, Week Ended July 10

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,456,000	55.7	13,197,000	66.2	6,821,000	58.6	1,807,000	83.4	3,999,000	51.7	33,370,000	60.6
Cracked	5,091,000	37.6	5,341,000	26.8	3,325,000	28.6	284,000	13.1	2,887,000	37.4	16,928,000	30.8
Natural	912,000	6.7	1,408,000	7.0	1,493,000	12.8	75,000	3.5	842,000	10.9	4,730,000	8.6
Total	13,549,000		19,946,000		11,639,000		2,166,000		7,728,000		55,028,000	

+ or — columns are % change from previous week.

Gasoline Stocks Lowered in Face of Big Gain in Output

Staff Special—By Telegraph
TULSA, July 14

GASOLINE production at Mid-Continent refineries that report their operating statistics weekly to NATIONAL PETROLEUM NEWS increased 7,300,000 gallons in the week ended July 10 when charges of crude oil to stills were increased a daily average of 49,800 barrels at these plants.

Gasoline shipments were 4,200,000 gallons less than in the preceding week when a new record was established. Shipments, however, were 3,700,000 gallons more than production. Stocks rose in only the Louisiana-Arkansas district where they had been lowered almost to a bare working level.

Kerosine stocks were stationary, although production increased almost a tenth. Shipments were 13.3 per cent larger than in the preceding week.

Stocks of distillate, gas oil and fuel oil rose.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended July 10. Change in stocks figures from June 12.

GASOLINE

	Gallons
Production	202,275,000
Shipments	231,516,000
Net change in stocks	—29,241,000
Ratio sales to production	114.5%

KEROSINE

	Gallons
Production	24,488,000
Shipments	21,685,000
Net change in stocks	+2,803,000
Ratio sales to production	88.6%

STOVE DISTILLATE

	Gallons
Production	5,774,000
Shipments	3,413,000
Net change in stocks	+2,361,000
Ratio sales to production	59.1%

GAS OIL

	Gallons
Production	21,407,000
Shipments	13,957,000
Net change in stocks	+7,450,000
Ratio sales to production	65.2%

FUEL OIL

	Gallons
Production	113,396,000
Shipments	94,033,000
Net change in stocks	+19,363,000
Ratio sales to production	82.9%

Aids Jobber Customers With Advertising

WICHITA, July 11.—Vickers Petroleum Co. is aiding independent Kansas jobber customers in their advertising by furnishing them with small printed folders to be handed out to service station customers. One of the most recent slips is based on the "patronize home industry" idea.

The folder on this subject carries the following message:

"We want you to know—

"When you buy gasoline from us, you are buying from a Kansas company that sells Kansas made gasoline from Kansas crude oil.

"Our refinery source of supply is strictly a Kansas owned company with its headquarters in Kansas, therefore when you purchase from us, the money stays in Kansas.

" 'Let's keep our dollars at home.' "

In addition the company has furnished jobbers with folders seasonally calling attention to the qualities of winter gasolines, motor oils and greases, folders telling how little extra anti-knock gasoline costs and how much added satisfaction it gives. Based on average gasoline consumption per car the folder on anti-knock gasolines pointed out that the extra cost is only about $1.40 per month.

New Books

Service Man's Guide to Automotive Lubrication, by John R. Rathbun, M.E. (Chek-Chart Corp. $2)—this book of 118 pages contains general information on the lubrication of automobiles and on automobile lubricants with their special applications.

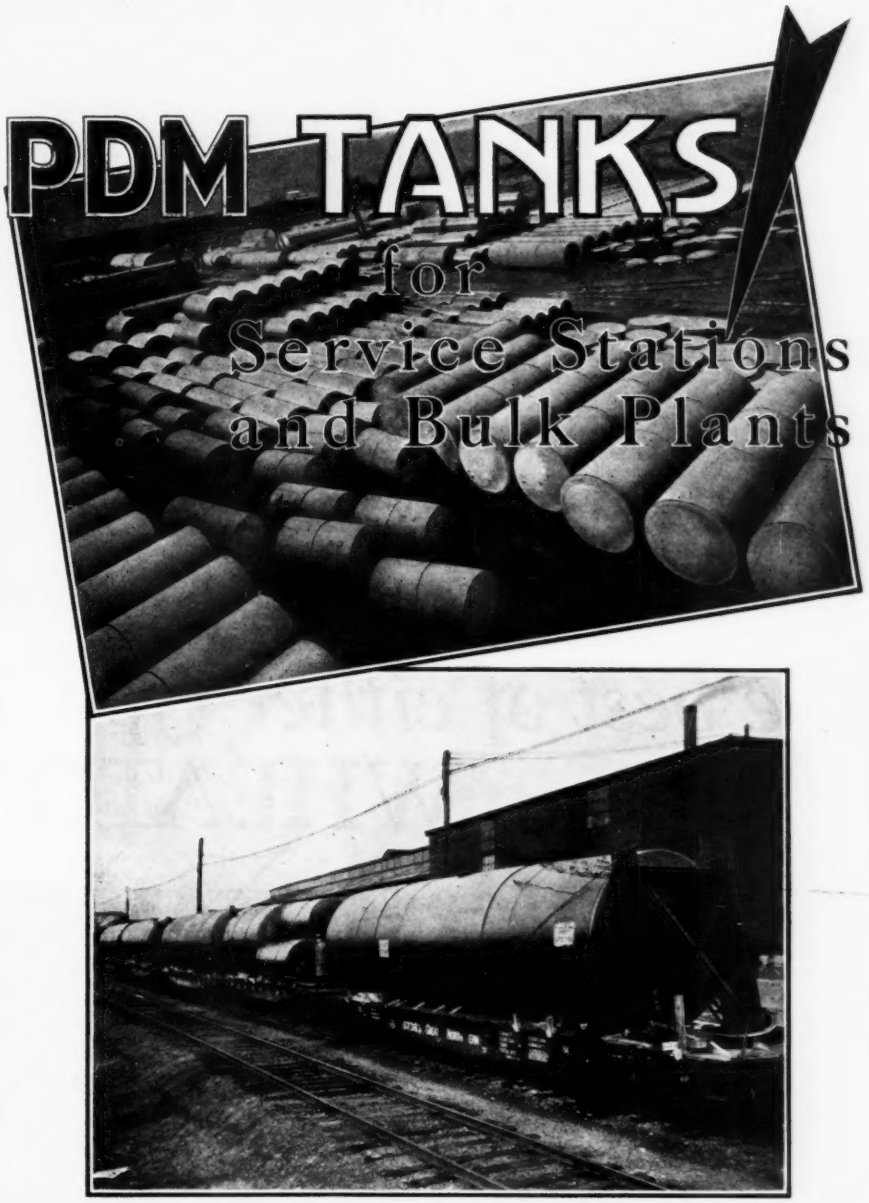
The author explains the construction and functions of working parts of automobiles and the lubrication problems peculiar to each part.

Chapters cover engines with various lubrication systems, clutches, transmission gears, universal joints, differential gears, axle bearings, steering joints, brake mechanism, shock absorbers, springs, and centralized chassis lubrication systems. In the chapter on transmissions is a section on lubrication of free-wheeling units.

Bell Buys Gathering System

TULSA, July 11.—The Tidal-Western Oil Corp. has sold its pipeline gathering system in the Burkburnett area to the Bell Oil & Gas Co. The line connects with the Bell's line at Bridgetown, Tex., and the oil gathered by the recently acquired line will be moved to the company's refinery at Granfield, Okla.

Today's Prices Favor Shrewd Marketers



Pittsburgh-Des Moines Steel Company

3468 Neville Island, Pittsburgh, Pa. Room 950—270 Broadway, N. Y. City

Atlanta Dallas Des Moines Chicago

"Burning Liquid Fuel"

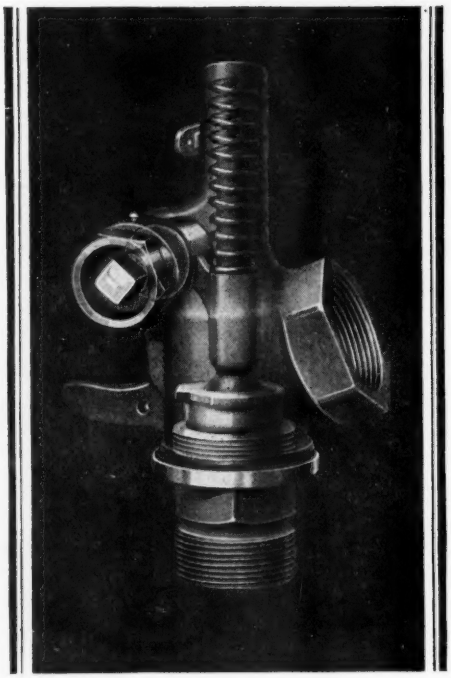
LEARN real facts which have never been published before on the subject of burning liquid fuel, by W. N. Best, the recognized authority.

Send your order and check for $4 to—

National Petroleum News

1213 W. 3rd Street Cleveland, Ohio

Whether you prefer the *Stuffing Box* ABOVE *or* BELOW the Valve—



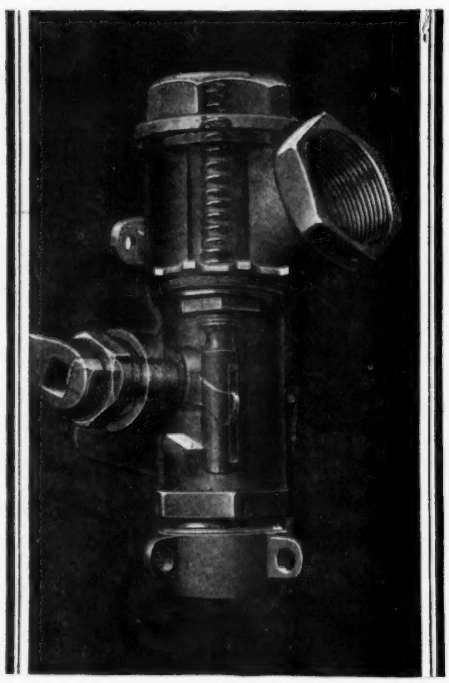
Type A Truck Tank Faucet

If you prefer the stuffing box *above* the valve, Type A should be your choice. For fifteen years Type A has served the oil industry—and for fifteen years Type A has steadfastly maintained its reputation for *flawless performance.* Today, with many of the finest oil companies in the United States, it is *standard equipment!* The transparent view at the left shows the internal structure, and how it operates. Like all Wheaton Faucets, Type A is *self-closing*—the operator must *hold* the valve open, as it closes the instant the wrench is released.

the best of either type of faucet is a WHEATON

Type 24 Truck Tank Faucet

If you prefer the stuffing box *below* the valve, Type 24 is the finest faucet your money can buy. It is *counterbalanced*—and that *assures* slow, smooth, easy action. The transparent view at the right shows the internal structure of this faucet. When the valve closes—as the plunger goes down—the chamber above the counterbalance flange must fill, and to do so the liquid must pass between the close-fitting flange and the chamber wall. The slow, gentle closing action of Type 24 relieves both the faucet and the connections of all vibrations and shocks.



DO you prefer the stuffing box *above* or *below* the valve? That alone determines your choice between these two Wheaton Faucets. In either case, you are certain of securing *the finest faucet of its type ever built.* And, whether you choose Type A or Type 24, depending on your preference of design, you will be selecting a faucet that is typically *Wheaton* in design—Wheaton in material and craftsmanship, too. And that means a faucet that is made of special-analysis bronze, which neither crystallizes nor corrodes; a faucet built to designs drawn from years of experience and study; a faucet, finally, which has that precise *fit* and perfect *finish* which are found in all Wheaton products.

We will gladly send you a sample of either or both of these two Wheaton Faucets for a 30 or 60 days' trial. If it does not prove entirely satisfactory, you may return it for credit or refund.

A. W. WHEATON BRASS WORKS
Newark, New Jersey

Empire Brass Mfg. Co., Ltd.,
London, Ontario,
Canadian Manufacturers and Distributors.

Wheaton

FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

Refinery - Tank Wagon Markets

Gasoline Prices Steady in Face of Cuts In Crude; Spot Buying Slackens

CLEVELAND, July 13

DOWNWARD revision of crude oil price structures east of California last week did not weaken gasoline markets but demand was under the demand of the week before.

Sellers and buyers seemed to be marking time in the Chicago market. The Mid-Continent market was in a good statistical position as a result of heavy buying in recent weeks and shipments to established trade.

Several Mid-Continent refiners were buying to cover previous sales, or to supplement their own output for their own distributing organization.

On the East coast the service station price reduction in Standard Oil Co. of New Jersey territory caused a halt in jobber buying but did not undermine the gasoline tank car market.

The cargo outlook on the East coast was not so promising as the week ended because of cargoes of gasoline laid down north of Cape Hatteras at prices lower than those prevailing recently. Suppliers were offering gasoline more freely than had recently been the case.

California refiners in view of the higher prices they are paying for crude are unable to meet the competition of Gulf refiners for East coast domestic and foreign business. Prices of gasoline cover a 3-cent range in California with the major companies on the top side. Inland outlets for California gasoline have also been pushed westward by the low prices prevailing in the Mid-Continent.

Export inquiries give promise of some future business but actual buying for shipment abroad was down 50 per cent the last week.

Except for an improvement in prices of Pennsylvania bright stocks, there has been little betterment among heavier products. Mid-Continent lube makers lowered their quotations with the cut in crude prices.

Mid-Continent burning oils are quiet. Prices of bunker C and diesel oils have been lowered at Gulf and Atlantic ports. One cargo sale of gas oil was reported made at 0.5-cent a gallon reduction.

Wax demand quieted down after the recent short covering and prices settled down to 2 cents a pound for white crude scale.

Gasoline Quiet in Chicago After Crude Cut

Staff Special

CHICAGO, July 11

TANK car gasoline prices took another upward step in the Chicago market during the early days of the week ended July 11 and prior to the announcements of crude reductions by the major buyers. Conditions were somewhat unsettled following the crude reductions and both buyers and sellers apparently had adopted a "watching waiting" policy which resulted in little activity.

Most traders were unwilling to gamble much on the present market either from a buying or selling standpoint. They pointed out that reductions in prices of Mid-Continent and Texas crudes are generally followed by lower tank car markets, but in this case, the gasoline market apparently is in a strong condition and might not react as usual. At any rate few changes were apparent in gasoline prices between the time of the announcements of the crude reductions July 8 and the close of business July 11.

Spot gasoline buying was light most of the week and jobbers apparently intended to work off the stocks they purchased prior to the July 4 holiday before buying more. Some sellers believed that if spot buying was as light next week as this that there would be gasoline available at lower prices.

Summary of Group 3 Quotations for U. S. Motor Gasoline, 437 E.P.

In Effect July 13

Oklahoma	2.875-3.125
Kansas	2.875-3.00
North Texas	2.875-3.00
East Texas	2.875-3.00
West Texas	2.875-3.00
Louisiana-Arkansas	2.875-3.00
Indiana-Illinois	2.75 -3.00

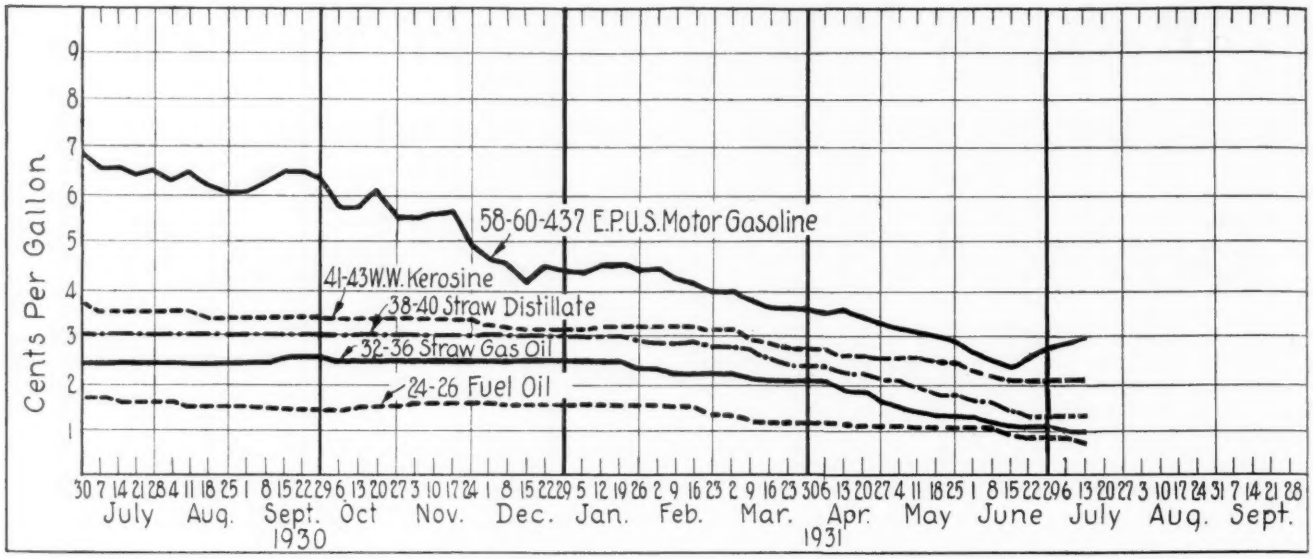
Prices are those quoted on the basis of f.o.b. Group 3 by refiners in the districts designated.

Others said they believed there had not been enough bought ahead to enable buyers to stay out of the market for another week and that if weather remained good, demand would be heavy enough to bring higher gasoline prices in spite of the crude reductions.

Another factor helping to create an uncertain feeling was the possibility of a reduction in retail gasoline prices. No official information was available regarding this possibility and opinion was divided on the subject. Some traders believed there would be a reduction as a result of the lower crude prices, while others said the amount of the crude reduction was not enough to make much of a change in the cost of producing gasoline. They also said that crude costs are now so low as to be one of the lesser factors in the cost of gasoline production and shouldn't have much effect at this time.

Tank car gasoline prices were advanced 0.125 cent on most grades early in the week and remained gen-

Current Prices of Principal Mid-Continent Refined Products



Prices shown are in Group 3 basis and extended to date shown in Refinery Market Table Section of this issue

erally unchanged thereafter. Sales of U. S. Motor were mostly at 2.75 to 2.875 cents on and after July 8 and at 2.625 to 2.875 cents earlier. Some refiners advanced their quotations to 3.25 cents, but no spot sales were reported at this figure.

Kerosine demand was characterized as spotty by most traders. Prices failed to reflect the strength in gasolines and were down 0.125 cent in many quarters. The 41-43 w.w. grade was moved at 1.875 to 2.125 cents.

Distillates, gas and fuel oils were quiet all week. Prices of most grades were lower, although several sellers said that 28-30 zero fuel was in better demand.

Adopt Standardized Report Forms

TULSA, July 11.—Four standardized report forms recommended for adoption by the Natural Gasoline Association of America by the Standard Forms Committee at the annual convention here were officially adopted July 7 by the Board of Directors.

The forms are: Orifice Meter Test Report, Charcoal Test Report, Physical Test Report, and Fuel Gas, Electricity, or Water Ticket.

Reproductions of the four forms were carried in NATIONAL PETROLEUM NEWS, issue of June 3, 1931, pages 64 and 65.

Shipments From Southern California

LOS ANGELES, July 9—Shipments of bulk petroleum from southern California ports to Foreign and Atlantic Seaboard ports totaled 944,515 barrels for week ended July 4. This figure compares with a total of 607,350 barrels shipped a week ago. Destination and quantity of shipments were as follows:

Destination	Crude	Gasoline	Diesel	Kerosine	Gas oil	Lube oil	Fuel	Total
Pacific For.	178,733	104,194	134,860	8,491	2,382	17,363	116,218	562,241
Atlantic Dom.	.....	176,725	.....	.....	.....	.....	.....	176,725
Atlantic For.	.....	205,549	.....	.....	.....	.....	.....	205,549

Bulk shipments from these ports for the month of June totaled 7,047,246 as compared with 8,454,543 barrels in May, 1931 and 10,923,246 barrels in June of 1930. Total shipments for the first six months of 1931 totaled 48,904,062 barrels as against a total of 67,029,799 barrels shipped over a similar period in 1930. The shipments were:

Destination	Crude	Gasoline	Diesel	Distillate	Kerosine	Fuel	Total	Lube Oil
Pacific Dom.	953,239	1,430,956	82,389	.....	6,000	880,744	3,353,328	.....
Pacific For.	421,747	191,751	426,233	.....	.....	1,111,814	2,168,908	17,363
Atlantic Dom.	.....	1,169,241	.....	95,122	47,000	.....	1,311,363	.....
Atlantic For.	.....	199,393	.....	.....	16,754	.....	216,147	.....

A comparison of shipments from these ports for the past five years:

For fiscal year ended June 30, 1931.....108,229,316 bbls.
For fiscal year ended June 30, 1930.....126,355,053 bbls.
For fiscal year ended June 30, 1929.....118,712,168 bbls.
For fiscal year ended June 30, 1928.....113,618,487 bbls.
For fiscal year ended June 30, 1927.....111,865,637 bbls.

Prices 10 Years Ago
July 13, 1921

	Oklahoma	Penna.
58-60 U. S. Motor.....	11.25-11.50	16.00-16.50
80-84 Natural	9.00-10.00	.....
Kerosine (41-43 Okla.; 47 w. w. Pa.)	2.00-2.25	6.00-6.50
Fuel Oil (24-26 Okla.; 36-40 Pa.)	$0.35-$0.40	3.25-3.50
Crude	$1.00	$2.25

Chicago tank wagon (no state tax) 18.00c

Prices A Year Ago
July 14, 1930

	Oklahoma	Penna.
58-60 U. S. Motor.....	6.5156	7.875-8.25
Grade A Natural	4.00-4.25	.....
Kerosine (Okla. 41-43; Pa. 47 w. w.)	3.375-3.75	5.125-5.50
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.65-$0.70	3.125-3.50
Crude (Okla. 35-35.9)..	$1.255	$2.25

Chicago tank wagon (including 3c tax) 18.00c

Mid-Continent Refinery Markets

Gasoline Prices Withstand Crude Cut

Staff Special
TULSA, July 11

CRUDE price reductions in several fields the week of July 6 to 11 failed to shake the Mid-Continent gasoline market.

This was due to the fact that the crude changes came at a time when refiners were experiencing an exceptionally heavy demand for gasoline, so much so that several were actively in the market buying from other refiners to supply the requirements of their own distributing companies and regular accounts.

Gasoline shipments the week preceding the Fourth of July holiday were entirely satisfactory from the standpoint of the refiners. In the Mid-Continent area stocks were reduced approximately 15,000,000 gallons while the American Petroleum Institute compilation of weekly operations for the nation as a whole showed stocks were reduced more than 90,000,000 gallons.

Inter-refinery buying which started about two weeks ago assumed large proportions in the past week.

One large refining company with retail distribution in the middle west already has bought approximately 600 cars of gasoline for July. The orders were placed in all districts of the Mid-Continent and in Illinois. Other refiners bought various amounts, ranging from 50 to 150 cars, and were still to be in the market July 11.

The buying was so general that refiners almost without exception reported they had sufficient orders on their books to keep them busy for several days, even if jobbers became less active as a result of the crude price changes.

While the immediate picture has been a pleasant one for refiners, the future is beginning to appear equally as attractive. With the present crude prices many wells undoubtedly will be shut in. Crude already was comparatively scarce in Oklahoma and Kansas and shutting in of these wells will tend to tighten the market still more. Producers generally believe that they can force an early advance if they shut down generally.

Many of the larger refiners have considerable crude in storage, but the fact that they have been buying gasoline from other companies is an indication they prefer to keep that low priced crude in storage and buy from other refiners.

The executive of one company which has been buying heavily said recently: "We have some crude in storage but we have taken a tremendous inventory loss on that oil. We could not refine it even now without standing a further loss in manufacturing. What we want now is more crude storage. We want to put more of this cheap oil in storage, and supply our requirements by buying on the outside, without increasing our crude runs."

A check among other refining companies who have been buying indicates approximately the same attitude.

This situation naturally was reflected in prices. Oklahoma refiners by July 11 were asking 2.875 to 3.125 cents generally for 58-60 U. S. Motor, and from 0.125 to 0.25 cent higher for their better grade of motor fuel. Kansas refiners quoted 3 to 3.25 cents, Group 3 basis, while the Texas refiners asked 2.875 cents and up, but almost without exception reported being unable to accept instructions for immediate shipment. This applied to the East Texas refiners as well as to those in other districts in the state.

The Arkansas and Louisiana refinery asked 3.25 cents a gallon for U. S. Motor gasoline for differential territory shipment, and quoted 3 cents and up on a group 3 basis.

Natural gasolines were comparatively active late in the week. This was true particularly in Oklahoma. Many manufacturers believed that if the various fields are shut in as has been proposed, natural gasoline production will fall sharply. This reduction on top of the reduction which has already occurred would cause a sizable draft on stocks in view of the fact that this is the season of most active demand.

One sales manager said the shutting in of the oil wells would curtail gasoline production at refineries, in his estimation, and that refiners would use more natural gasoline to blend up stored gasoline. This sales manager expects to see natural gasoline get out of line with reference to its usual price relationship to U. S. Motor gasoline.

Kerosines were in light demand in most districts but prices generally remained unchanged. Distillates were virtually out of the picture. Gas oils were in fair demand but production continued to outdistance shipments.

Fuel oils were inactive in most districts. The East Texas situation kept the remainder of the districts inactive. One buyer this week obtained 30 cars of fuel oil in East Texas at 5 cents a barrel, f.o.b. plant. This amounts to about 11 cents a barrel, f.o.b. Group 3.

The crude price reductions resulted in slightly lower prices being established for neutral oils and cylinder stocks. Several companies lowered prices for all grades of neutral oils 0.25 to 0.50 cent a gallon. Bright stock price ranges were narrowed with a few refiners announced reductions of 0.50 cent.

Wax and petroleum coke were in light demand at unchanged prices.

Ruskin Quotation Helps Fight on Third Grade

WICHITA, July 14.—Refusing to sell a low quality gasoline in spite of third grade competition, a number of Independent jobbers in Kansas have waged successful campaigns to keep their business in the face of the new competition.

E. M. Taylor of the Home Oil Co., Kinsley, Kans., has been using a quotation from Ruskin with good effect in his advertising. The quotation follows:

"There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey."

Mr. Taylor has had this quotation printed on large cards which have been displayed prominently at his stations. He has made much capital of the fact that the quality of his merchandise has not been lowered.

The result of the campaign has been that gallonage from the Home Oil Co.'s four bulk stations and service stations has been kept up without loss since the third grade was introduced.

Gas Buyer Also Gets Drip Gasoline

TULSA, July 11.—Producers selling natural gas cannot retain the drip gasoline since it also belongs to the purchaser of the natural gas, the state supreme court ruled July 8. The decision was handed down in the suit of the Mid-Continent Petroleum Corp. against the Blackwell Gas Co.

The court's decision is a reversal of a previous one, written by Justice Hefner, in which he held that the sale of the natural gas did not carry with it the sale of the drip gasoline. On the rehearing granted July 8 the new decision was handed down.

Chicago Tank Car Market

CHICAGO, July 11

GASOLINE prices were advanced 0.125 cent by most sellers early this week. The crude reduction announced July 8 unsettled the market and it was quiet thereafter with no further advances in prices. Spot demand was light all week with a fair demand from contract buyers.

Spot sales of U. S. Motor were mostly at 2.625 to 2.875 cents prior to July 8 and at 2.75 to 2.875 cents thereafter. Some sellers asked up to 3.25 cents for Motor but reported no sales. Kerosines were spotty in demand and prices were lower in several quarters. Distillates, gas and fuel oils were quiet.

Following prices represent majority of sales to jobbers made July 13 on Group 3 freight basis, although shipments may originate in other refining districts such as North, West and East Texas, Louisiana, Arkansas, Indiana, Illinois, Kentucky, etc.

	Prices July 13	Prices July 6	Prices June 29
50-52, 437 e.p. naphtha	2.625– 2.75	2.50 – 2.75	2.25 – 2.625
58-60 U. S. Motor, 437 e.p.	2.625– 2.875	2.625– 2.75	2.375– 2.625
†56-62 400-437 e.p. anti-knock gasoline	3.00 – 3.50	2.875– 3.50	2.625– 3.50
60-62 437 e.p. gasoline	2.625– 2.875	2.625– 2.875	2.375– 2.625
60-62 400 e.p. gasoline	2.875– 3.125	2.75 – 3.00	2.50 – 2.75
64-66 375 e.p. gasoline	3.125– 3.375	3.125– 3.375	2.875– 3.125
68-70 350-360 e.p. gasoline	3.25 – 3.50	3.25 – 3.50	3.125– 3.375
*Domestic Aviation Gasoline	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
41-43 w.w. kerosine	1.875– 2.125	2.00 – 2.25	2.00 – 2.25
42-44 w.w. kerosine	2.00 – 2.25	2.125– 2.375	2.125– 2.375
38-40 p. w. distillate	1.25 – 1.50	1.375– 1.625	1.375– 1.625
38-40 straw distillate	1.125– 1.375	1.25 – 1.375	1.25 – 1.50
32-36 ordinary dark gas oil	0.625– 0.875	0.625– 0.875	0.625– 0.875
32-36 dark zero gas oil	1.00 – 1.25	1.125– 1.25	1.125– 1.25
32-36 straw zero gas oil	1.125– 1.375	1.125– 1.375	1.125– 1.375
28-30 zero fuel oil (per bbl.)	$0.375–$0.40	$0.425–$0.475	$0.45 –$0.50
28-30 fuel oil (per bbl.)	$0.35 –$0.375	$0.40 –$0.45	$0.45 –$0.475
24-26 fuel oil (per bbl.)	$0.275–$0.30	$0.275–$0.325	$0.325–$0.35
18-22 fuel oil, low sulfur (per bbl.)	$0.20 –$0.225	$0.20 –$0.25	$0.225–$0.275
18-22 fuel oil, high sulfur zero (per bbl.)	$0.225–$0.25	$0.225–$0.25	$0.25 –$0.30
14-16 fuel oil (per bbl.)	$0.175–$0.20	$0.20 –$0.225	$0.20 –$0.25

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Over 45% benzol equivalent. Prices represent quotations and sales.

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and co-operative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

52406.—**Asphalt**, Rio de Janeiro, agency.

52409.—**Lubricating oils**, Milan, Italy, agency.

52410.—**Fuel, diesel, and lubricating oils for ships**, Oslo, Norway, agency.

52465.—**Lubricating oils**, Ahmedabad, India, purchase and agency.

52534.—**Paraffin**, Cali, Colombia, agency.

52539.—**Lubricating oils**, Glasgow, Scotland, purchase.

52605.—**Mexican bitumen**, Bergen, Norway, purchase.

52613.—**White paraffin**, Liverpool, England, purchase.

51726.—**White tasteless mineral oil**, Havana, Cuba, sole agency.

51727.—**Automobile oils**, Vienna, Austria, agency.

51766.—**Hard paraffin**, Santiago, Chile, sole agency.

51794.—**Natural asphalt for manufacturing black paints and lacquers**, Berlin, Germany, purchase or agency.

51832.—**Automobile and industrial lubes**, Casablanca, Morocco, purchase.

51833.—**Automobile oils**, Hamburg, Germany, purchase or agency.

51888.—**Lubricating oils and greases for automobiles and engines**, Khartoum, Egypt, agency.

52158.—**Petrolatum**, Berlin, Germany, agency.

52172.—**Paraffin**, Hamburg, Germany, agency.

Letters to the Editor

Sir:

In these days of hog eat hog, and we are fast arriving to the day that there will not be any thing for the hogs to eat, it is about time that we all cease gnawing at each others throat and settle down to the thought of how we are going to move the petroleum industry just a little farther away from the poor house.

The past is far behind us, so let us leave it there. All we want of it is the men and their brains, ten years ago today is not the question, tomorrow is our worry.

Proration has been going on for the past two years and we have more inventory on hand now than we ever had before proration was talked about. It is indeed a problem to keep a man from selling what he has or can produce.

That is just what the industry is trying to do with proration laws and it has been a sad failure.

I have a suggestion which I believe will stop over production, within six months if the industry (including the stock holders) will work together, we can accomplish much in the right way of permanent stability of markets.

I suggest that we all work for a federal tax of 2 cents a gallon on all crude oil in storage on Jan. 1 and June 1, of each year.

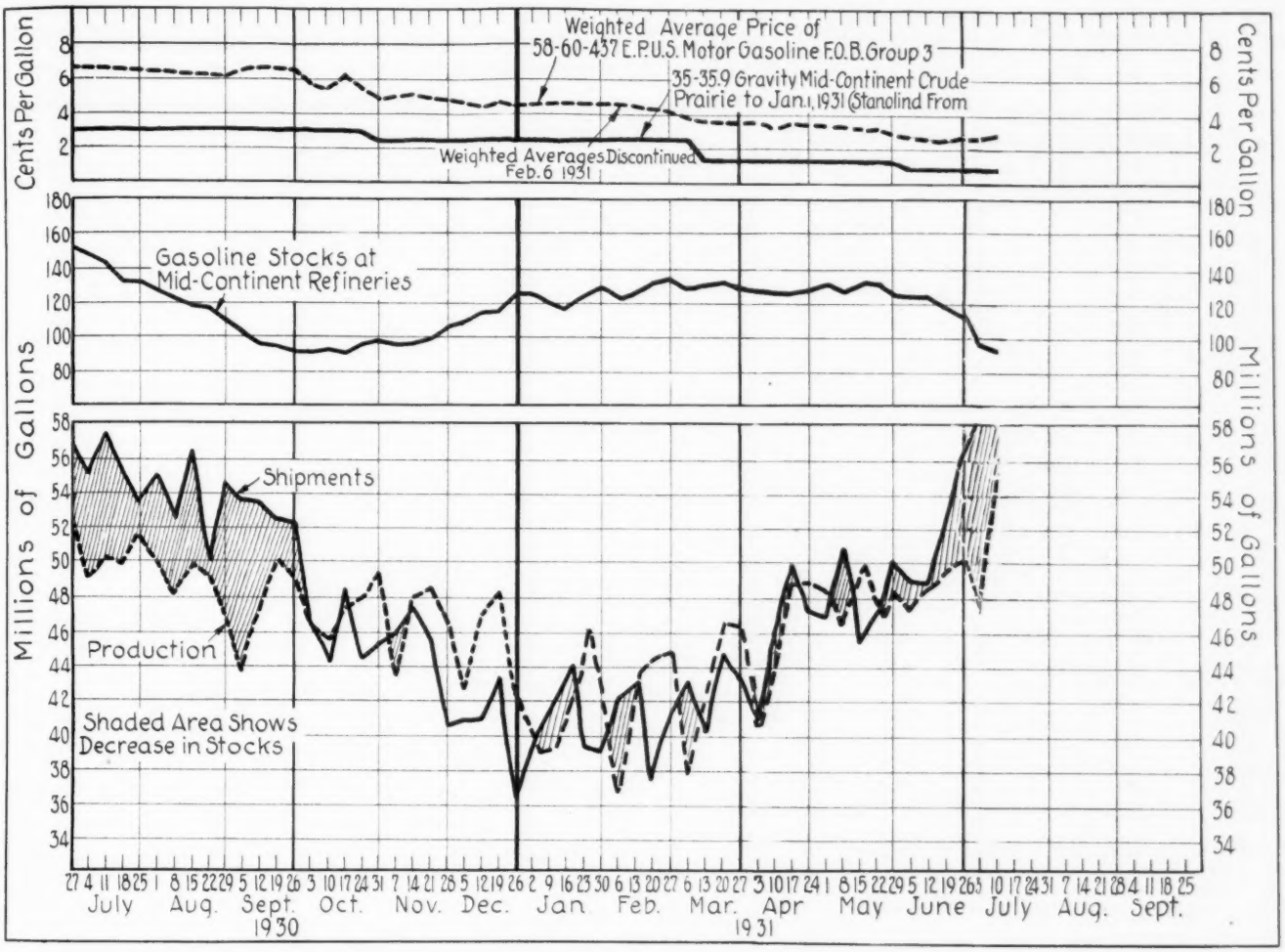
With an exemption of 30 days inventory requirements, such requirements to be based on the demand for refined products.

There is but few if any obstacles to overcome in carrying this suggestion to a real cure for our production problems. I am sure that a committee of our own men in the industry could carry this suggestion to a practical policy.

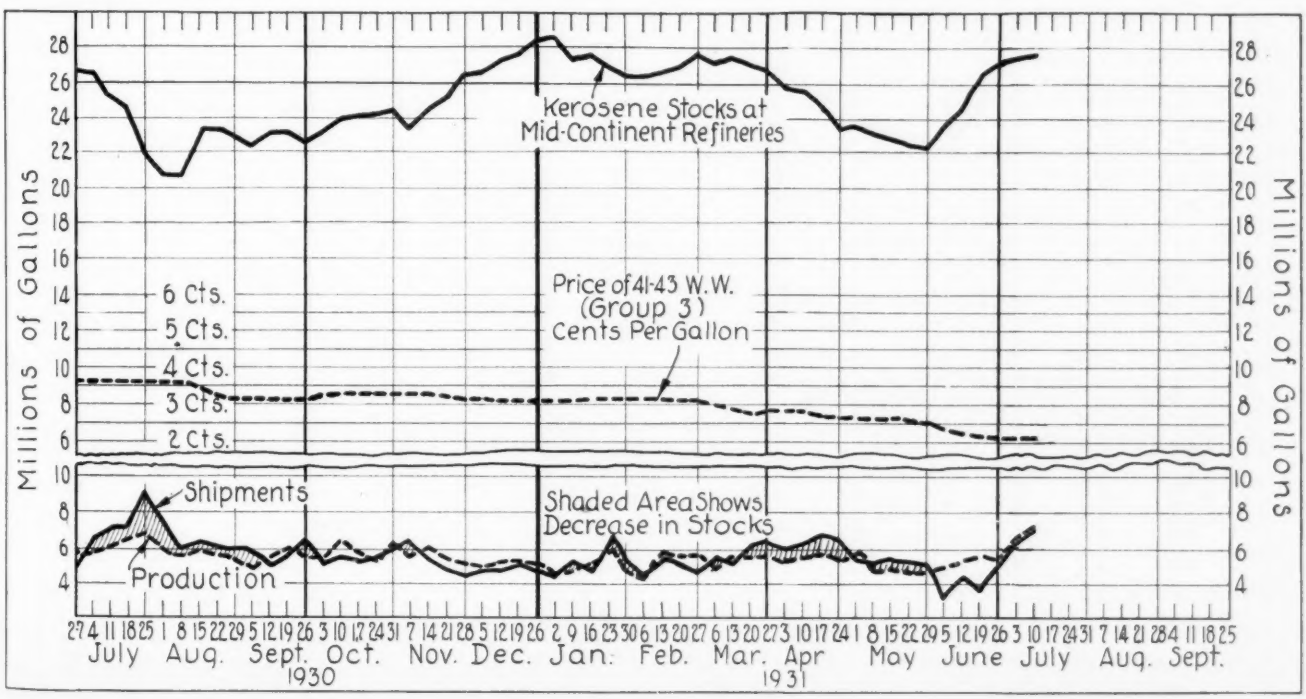
Hartley W. Jones
Morristown, N. J.

Barometer of Mid-Continent Refinery Market—Week Ending July 10

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Weighted Average Price of 58-60-437 E.P.U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude Prairie to Jan. 1, 1931 (Stanolind From
Weighted Averages Discontinued Feb. 6 1931
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Shipments
Production
Shaded Area Shows Decrease in Stocks
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr May June July Aug. Sept.
1930
1931

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 65



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices July 13	Prices July 6	Prices June 29
48-50 450 e.p. naphtha...	2.625– 2.75	2.375– 2.625	2.25 – 2.375
50-52 450 e.p. naphtha...	2.625– 2.75	2.375– 2.625	2.25 – 2.375
56-58 450 e.p. gasoline...	2.625– 2.75	2.375– 2.50	2.25 – 2.375
58-60 450 e.p. gasoline...	2.625– 2.75	2.375– 2.50	2.25 – 2.375
58-60 U.S. Motor 437 e.p.	2.875– 3.125	2.75 – 2.875	2.50 – 2.875
60-62 437 e.p. gasoline...	2.875– 3.125	2.75 – 2.875	2.50 – 2.875
60-62 400 e.p. gasoline...	3.00 – 3.25	2.75 – 3.00	2.625– 3.00
64-66 390 e.p. gasoline...	3.125– 3.375	2.875– 3.125	2.875– 3.125
64-66 375 e.p. gasoline...	3.25 – 3.50	3.125– 3.375	3.00 – 3.375
68-70 350-360 e.p. gasoline	3.375– 3.625	3.25 – 3.50	3.25 – 3.50
‡Domestic Aviation Gasoline.....	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	4.00 – 4.25	4.00 – 4.25	4.25 – 4.50
54-56 Naphtha.....	4.00 – 4.25	4.00 – 4.25	4.25 – 4.50
58-60 U.S. Motor 437 e.p.	4.125– 4.625	4.25 – 4.625	4.375– 4.75
60-62 400-410 e.p. gasoline	4.25 – 4.75	4.375– 4.75	4.50 – 4.875
64-66 390 e.p. gasoline...	4.50 – 5.25	4.75 – 5.25	4.75 – 5.25
68-70 350-360 e.p.....	5.00 – 5.50	5.25 – 5.75	5.50 – 5.75

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline			
Ohio, delivery at any point.....	7.00	7.00	7.00

KANSAS (F. o. b. refinery Kansas destination)

58-60 U.S. Motor 437 e.p.	3.125– 3.375	3.00 – 3.125	2.875– 3.125
60-62 437 e.p. gasoline...	3.25 – 3.50	3.125– 3.25	3.00 – 3.25
60-62 400 e.p. gasoline...	3.50 – 3.625	3.25 – 3.50	3.25 – 3.50
64-66 375 e.p. gasoline...	3.625– 3.75	3.50 – 3.75	3.50 – 3.75

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline...	2.625– 2.75	2.375– 2.50	2.25 – 2.375
58-60 450 e.p. gasoline...	2.625– 2.75	2.375– 2.50	2.25 – 2.375
58-60 U.S. Motor 437 e.p.	2.875– 3.00	2.625– 2.75	2.50 – 2.75
60-62 400 e.p. gasoline...	3.00 – 3.125	2.75 – 3.00	2.625– 2.875
64-66 390 e.p. gasoline...	3.125	2.875– 3.125	2.75 – 3.125
64-66 375 e.p. gasoline...	3.25	3.125– 3.25	3.00 – 3.25
68-70 350-360 e.p. gasoline	3.375– 3.625	3.25 – 3.50	3.25 – 3.50

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	2.25 – 2.375	2.25 – 2.375	2.125– 2.25
58-60 437 e.p. gasoline...	2.625– 2.75	2.50 – 2.625	2.375– 2.50
58-60 U.S. Motor 437 e.p.	2.875– 3.00	2.625– 2.75	2.50 – 2.75

EAST TEXAS (F.o.b. East Texas Refineries)

58-60 U. S. Motor, 437 e.p.	2.875– 3.00	2.50 – 2.75	2.50
60-62 437 e.p. gasoline...	2.875– 3.125	2.625– 2.875	2.50

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e.p.	3.25	3.25	2.75

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	3.25	3.25	2.75

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	6.50 – 9.50	6.50 – 9.50	7.25 – 9.50
54-58 U.S. Motor, for outside state shipment....	5.00 – 6.50	5.25 – 6.25	6.75 – 7.50
58-61 375-400 e.p. gasoline	10.50 –11.50	10.50 –11.50	10.50 –11.50
42-45 Engine Distillate 445-480 e.p.....	7.00 – 8.00	7.00 – 8.50	7.00 – 8.50

NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	2.00	1.875	1.75
Grade A, 72-79.9, 90% Recovery.....	2.125– 2.25	1.875– 2.00	1.875
Grade BB, 84-92, 85% Recovery.....	1.875– 2.00	1.75	1.625
Grade B, 76-83.9, 85% Recovery.....	1.875– 2.00	1.75	1.625
Grade C, 80-92, 78% Recovery.....	1.875– 2.00	1.75	1.625

†Prices nominal ††Only one refiner quoting *Quotations only
****Prices represent quotations and sales**

NORTH TEXAS (F. o. b. Breckenridge)

	Prices July 13	Prices July 6	Prices June 29
Grade AA, 80-87.9, 90% Recovery.....	1.75	1.50 – 1.625	1.50 – 1.625
Grade A, 72-79.9, 90% Recovery.....	1.875	1.875	1.875
Grade BB, 84-92, 85% Recovery.....	1.625– 1.75	1.50	1.50
Grade B, 76-83.9, 85% Recovery.....	1.625– 1.75	1.50	1.50
Grade C, 80-92, 78% Recovery.....	1.625– 1.75	1.50	1.50

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA.....	†2.00	†1.75 –2.00	†1.875
Grade BB.....	†1.875– 2.00	†1.75	†1.75
Grade C.....	†1.875– 2.00	†1.75	†1.75

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending.....	5.00 – 5.75	5.50 – 6.00	5.00 – 6.50

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosine.....	3.375– 3.75	3.375– 3.75	3.625– 4.00
46 w.w. kerosine.....	3.50 – 3.875	3.625– 3.875	3.875– 4.125
47 w.w. kerosine.....	3.875– 4.125	3.875– 4.125	4.00 – 4.25

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosine.....	1.875– 2.125	2.00 – 2.25	2.00 – 2.25
42-44 w.w. kerosine.....	2.00 – 2.25	2.125– 2.375	2.125– 2.375

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosine.....	2.375– 2.625	2.50 – 2.625	2.50 – 2.625
42-44 w.w. kerosine.....	2.625– 2.75	2.625– 2.75	2.625– 2.75

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosine.....	1.625– 1.875	1.75 – 2.00	1.875– 2.125
41-43 w.w. kerosine.....	1.75 – 2.00	1.875– 2.125	2.00 – 2.25

EAST TEXAS (F.o.b. East Texas Refineries)

41-43 w.w. kerosine.....	1.875– 2.125	1.875– 2.125	2.00 – 2.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosine.....	2.25 – 2.50	2.25 – 2.50	2.50

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w.w. kerosine.....	2.25 – 2.50	2.25 – 2.50	2.50

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosine.....	4.00 – 4.75	4.50 – 5.50	4.50 – 5.50

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.	(Viscosity at 70° F.)		
200 No. 3 color, 420-425 flash.....	19.50 –20.00	19.50 –20.00	20.00 –20.50
180 No. 3 color, 410-415 flash.....	17.00 –18.00	17.00 –18.00	17.00 –18.00
150 No. 3 color, 400-405 flash.....	14.50 –15.50	14.75 –15.50	14.75 –15.50

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 2.....	4.50 – 4.75	4.75	4.75
150—No. 3.....	6.00	6.25	6.25
150—No. 4.....	5.75	6.00	6.00
180—No. 3.....	8.00	8.00 – 8.25	8.00 – 8.25
180—No. 4.....	7.25 – 7.50	7.50 – 7.75	7.50 – 7.75
180—No. 5.....	7.00	7.25	7.25
200—No. 3.....	8.50	8.50 – 9.00	8.50 – 9.00
200—No. 4.....	8.25	8.25 – 8.50	8.25 – 8.50
200—No. 5.....	8.00	8.00 – 8.25	8.00 – 8.25
220—No. 3.....	9.25 – 9.50	9.50 – 9.75	9.50 – 9.75
220—No. 4.....	8.75	9.00	9.00
220—No. 5.....	8.25	8.50	8.50
240—No. 3.....	10.00	10.25 –10.50	10.25 –10.50
240—No. 4.....	9.50	10.00	10.00
240—No. 5.....	9.00	9.50	9.50
280—No. 3.....	11.75	12.00 –12.25	12.00 –12.25
280—No. 4.....	10.75	11.00 –11.25	11.00 –11.25
280—No. 5.....	10.00	10.50	10.50

Note: Quotations for 0 to 10 cold test neutral oils are 1 to 2 cents higher depending on the grade.

****Prices represent Quotations and Sales.**

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis. Color	Prices July 13	Prices July 6	Prices June 29
	(Viscosity at 100° F., pour test 0)		
100—No. 2 Pale	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
200—No. 3 Pale	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
300—No. 3 Pale	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
500—No. 3½ Pale	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
750—No. 4 Pale	10.00 –10.25	10.00 –10.25	10.00 –10.25
1200—No. 4 Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
2000—No. 4-5 Pale	13.00 –13.25	13.00 –13.25	13.00 –13.25
200—No. 5½ Red Oil	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
300—No. 5½ Red Oil	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
500—No. 6 Red Oil	8.00 – 8.25	8.00 – 8.25	8.00 – 8.25
750—No. 6 Red Oil	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
1200—No. 5-6 Red Oil	11.00 –11.25	11.00 –11.25	11.00 –11.25
2000—No. 6 Plus Red Oil	13.00 –13.25	13.00 –13.25	13.00 –13.25

‡CALIFORNIA (F. o. b. California refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 3	7.00	7.00	7.00
200—No. 3	10.00	10.00	10.00
300—No. 3	10.50	10.50	10.50
450—No. 3	12.50	12.50	12.50
550—No. 3	13.50	13.50	13.50
600—No. 3	13.50	13.50	13.50
200—No. 5	10.00	10.00	10.00
300—No. 5	10.50	10.50	10.50
400—No. 5	12.00	12.00	12.00
500—No. 5	13.00	13.00	13.00
600—No. 5	13.50	13.50	13.50
700—No. 7	15.50	15.50	15.50

‡Above prices in effect since April 1.

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Cylinder stock prices represent quotations and sales to domestic jobbers only).

190-200 Vis. D at 210° Brt. St.	16.00	17.00	17.00
150-160 Vis. D at 210° Brt. St., 0-10 cold test	12.00 –13.00	12.00 –13.00	12.00 –13.00
150-160 Vis. D at 210° Brt. St., 10-25 cold test	11.50 –12.50	12.00 –13.00	12.00 –13.00
150-160 Vis. D Brt. Stock, 25-40 cold test	11.50 –12.50	11.50 –12.50	11.75 –12.75
150-160 Vis. E 210° Brt. St.	11.00 –12.00	11.50 –12.50	11.50 –12.50
600 St. Ref. Olive Green	4.00 – 5.00	4.25 – 5.00	4.25 – 5.00
600 St. Ref. Dark Green	3.50 – 4.25	4.00 – 4.50	4.00 – 4.50
Black Oil	3.875– 4.25	4.00 – 4.625	4.00 – 4.75

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
650 Steam Refined	10.25 –11.00	10.25 –11.00	10.25 –11.00
600 Flash	11.00 –11.50	11.00 –11.50	11.00 –11.50
630 Flash	17.00 –17.50	17.00 –17.50	17.00 –17.50
600 Warren E	11.25 –12.00	11.25 –11.50	11.25 –11.50
Cold Test Stocks, 140-150 vis. at 210°, 540-550 flash, No. 8 color, 20 pour test and below	17.00 –17.75	16.50	16.00 –16.50
No. 8 color, 25 and 35 pour test	17.00 –17.75	16.50 –17.00	16.00 –16.25
No. 8 color, 40 pour test and above	17.00 –17.75	16.00 –16.50	15.75 –16.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale a.m.p.	2.00 – 2.125	2.00	2.00
124-126 white crude scale, a.m.p.	2.00 – 2.125	2.00	2.00

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

124-126 White Crude Scale, a.m.p.	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	2.375– 2.625	2.375– 2.625	2.375– 2.625
30-34 fuel oil	2.375– 2.625	2.375– 2.625	2.375– 2.625
28-32 fuel oil	2.375– 2.625	2.375– 2.625	2.375– 2.625

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices July 13	Prices July 6	Prices June 29
38-40 straw distillate	1.25 – 1.50	1.25 – 1.50	1.25 – 1.50
36-38 straw distillate	1.125– 1.375	1.125– 1.375	1.125– 1.375
32-36 straw gas oil	0.875– 1.125	0.875– 1.125	1.00 – 1.25
32-36 straw gas oil zero	1.125– 1.375	1.25 – 1.50	1.25 – 1.50
32-36 dark gas oil	0.75 – 1.00	0.75 – 1.125	0.75 – 1.125
32-36 dark gas oil zero	1.125– 1.25	1.125– 1.375	1.125– 1.375
28-30 zero fuel oil(per bbl.)	$0.40 –$0.45	$0.45 –$0.50	$0.475–$0.525
28-30 fuel oil (per bbl.)	$0.35 –$0.375	$0.45 –$0.50	$0.45 –$0.50
26-28 fuel oil (per bbl.)	$0.30 –$0.35	$0.40 –$0.45	$0.40 –$0.45
24-26 fuel oil (per bbl.)	$0.275–$0.325	$0.35 –$0.40	$0.35 –$0.40
22-26 fuel oil (per bbl.)	$0.25 –$0.30	$0.325–$0.375	$0.325–$0.375
18-22 fuel oil (per bbl.)	$0.225–$0.275	$0.25 –$0.325	$0.25 –$0.325
16-20 fuel oil (per bbl.)	$0.20 –$0.25	$0.25 –$0.30	$0.25 –$0.30
14-16 fuel oil (per bbl.)	$0.175–$0.20	$0.225–$0.275	$0.225–$0.275

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
36-38 straw distillate	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
32-36 straw gas oil	1.625– 1.75	1.625– 1.75	1.625– 1.75
18-22 fuel oil (per bbl.)	$0.35 –$0.45	$0.40 –$0.50	$0.40 –$0.50
10-14 fuel oil (per bbl.)	$0.25 –$0.30	$0.30 –$0.35	$0.30 –$0.35

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	1.25 – 1.375	1.25 – 1.50	1.25 – 1.50
38-40 p.w.treated distillate	1.25 – 1.50	1.375– 1.625	1.375– 1.625
32-36 gas oil, cracked	1.00 – 1.125	1.00 – 1.125	1.00 – 1.125
32-36 St. reduced gas oil	0.625– 1.00	0.75 – 1.125	0.875– 1.125
24-26 fuel oil (per bbl.)	$0.275–$0.325	$0.30 –$0.35	$0.30 –$0.35
20-24 fuel oil (per bbl.)	$0.25 .$0.30	$0.25 –$0.30	$0.25 –$0.30
18-22 fuel oil (per bbl.)	$0.175–$0.225	$0.225–$0.275	$0.225–$0.275

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment

30-32 gas oil	0.75 – 1.125	0.75 – 1.125	0.875– 1.125
28-30 zero gas oil	1.00 – 1.25	1.00 – 1.25	1.125– 1.25
18-22 fuel oil (per bbl.)	$0.175–$0.225	$0.25 –$0.30	$0.25 –$0.30

EAST TEXAS (F.o.b. East Texas Refineries)

30-34 gas oil	$0.625–$1.00	$0.50	0.50
18-22 fuel oil	$0.10 –$0.20	$0.25	$0.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
32-36 gas oil, straw	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
14-16 fuel oil (per bbl.)	$0.50 –$0.55	$0.50 –$0.55	$0.50 –$0.55

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
32-36 dark gas oil	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
28-30 gas oil	1.625– 1.75	1.75 – 2.00	1.75 – 2.00
20-24 fuel oil (per bbl.)	$0.675–$0.725	$0.675–$0.725	$0.675–$0.725
9-12 fuel oil (per bbl.)	$0.50 –$0.55	$0.50 –$0.55	$0.50 –$0.55
Black oil	3.00	3.00	3.00

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.40 –$0.50	$0.40 –$0.50	$0.40 –$0.50
14-18 Bunker oil (per bbl.)	$0.50 –$0.80	$0.50 –$0.80	$0.50 –$0.80
30-34 gas oil (per bbl.)	$0.70 –$0.85	$0.75 –$0.90	$0.70 –$0.85
27 Plus Diesel oil (per bbl.)	$0.70 –$0.85	$0.75 –$0.90	$0.70 –$0.85

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. Penna. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

Snow White	6.25 – 7.00	6.25 – 7.00	6.25 – 7.00
Lily White	5.125– 6.00	5.125– 6.00	5.125– 6.00
Cream White	4.125– 5.00	4.125– 5.00	4.125– 5.00
Light Amber	2.625– 2.875	2.625– 2.875	2.625– 2.875
Amber	2.375– 2.625	2.375– 2.625	2.375– 2.625
Red	1.875– 2.375	1.875– 2.375	1.875– 2.375

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

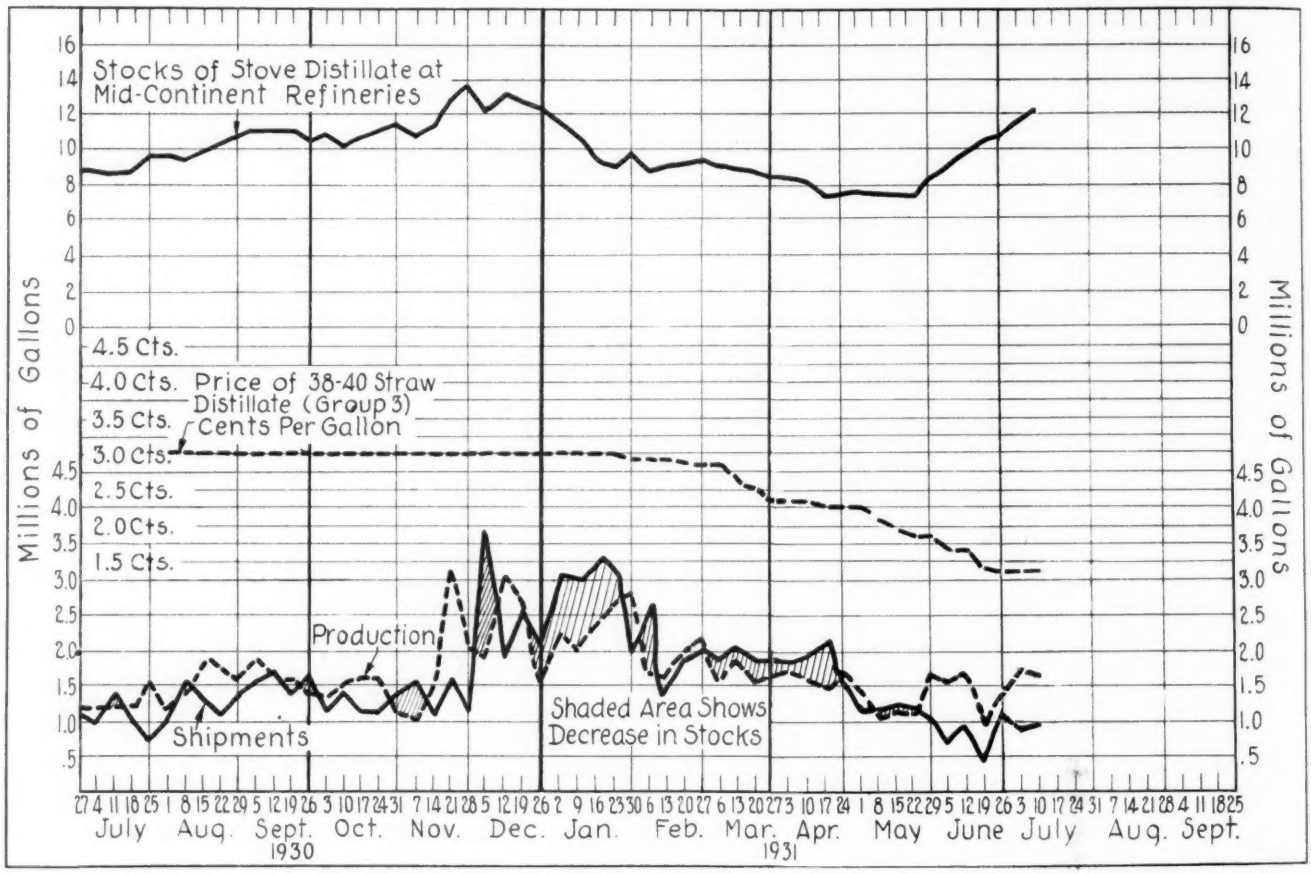
(Per ton in car lots)

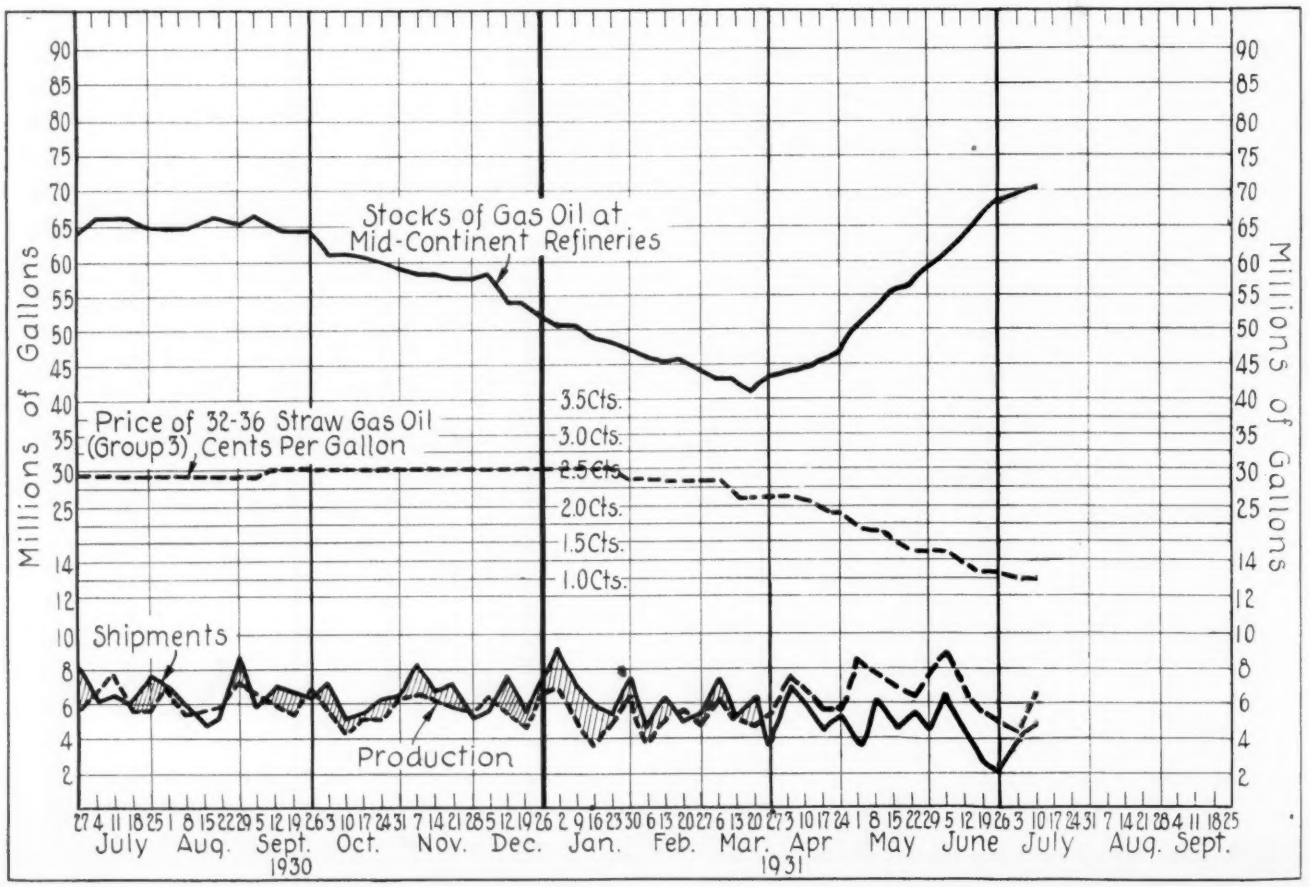
Lump	$3.00 –$4.00	$3.00 –$4.00	$4.00
Still run	$2.00 –$3.00	$2.00 –$3.00	$2.00
Breeze	$0.75 –$1.50	$0.75 –$1.50	$1.25

****Prices represent Quotations and Sales**

Barometer of Mid-Continent Refinery Market—Week Ending July 10

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News





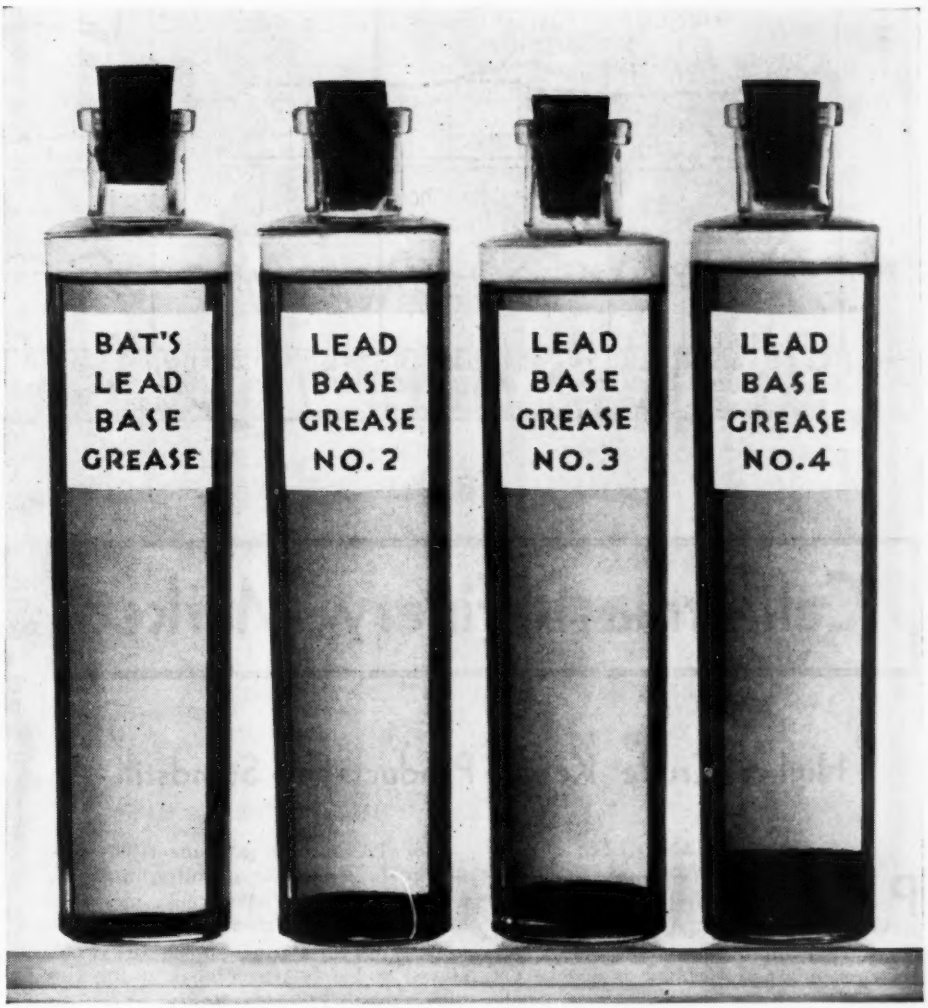
Bat's

Lead Base Grease Proves Best by Test

LEAD base grease and kerosene, in equal parts, were thoroughly mixed in these four bottles and allowed to stand for two weeks to make a comparative test of uniformity and homogeneity of the four samples.

At the end of the two weeks this picture was taken. The slight trace of settlings from Bat's Lead Base Grease leaves no doubt as to its superiority as a lubricant of this type.

Bat's Greases prove best by test because each Battenfeld product is made to meet the specific requirements of the particular purpose for which it is to be used.



BATTENFELD GREASE AND OIL CORPORATION

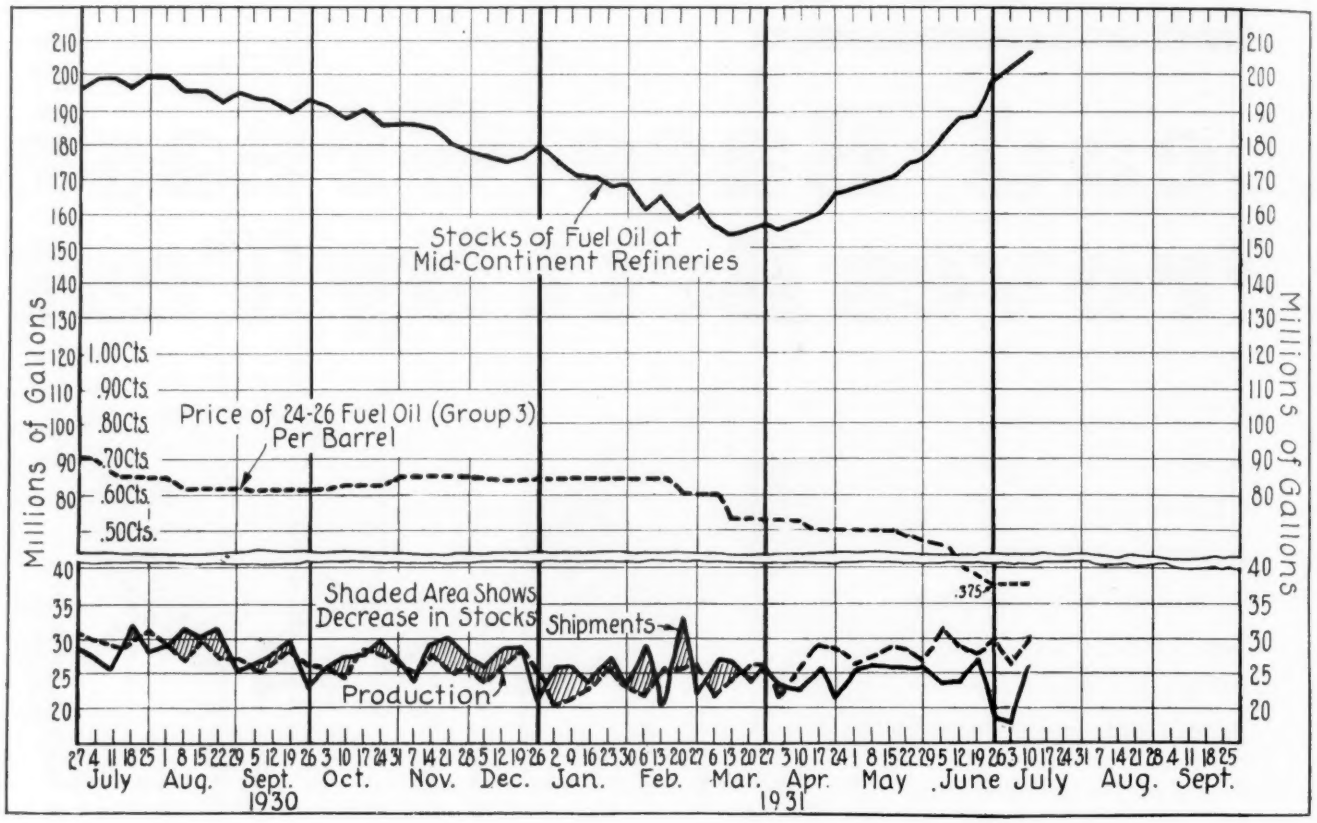
KANSAS CITY, MISSOURI

BRANCH FACTORY
Minneapolis, Minn.

"Business is Ingreasing"

Barometer of Mid-Continent Refinery Market—Week Ending July 10

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



California Refinery Market

Higher Crude Keeps Products at Standstill

LOS ANGELES, July 9

PACIFIC Coast export markets, which are practically nominal, have been at a standstill since the upward revision in crude oil and gasoline price schedules last month. Although inquiries for California products have been only spasmodic since the first of the year, traders now can see little chance of sale to either Atlantic domestic or foreign buyers in competition with quotations of Gulf suppliers.

Heavy oils continued to receive some attention from Pacific foreign buyers, but the competition is so keen among local refiners for this business that there is a reluctance to divulge current quotations.

Notwithstanding an unsettled condition in domestic gasoline markets over most of the past week, members of the trade reported a stronger tone to prevailing quotations as the week closed and a few predicted major and independent refiners would work out satisfactory price adjustments within the coming week.

Quotations on gasoline to be used within the state ranged late in the week from 6.50 cents, at independent refineries, to 9.50 cents at those of the major companies. These prices are on tank car or truck and trailer lots and are exclusive of tax. Earlier in the week several sales were made as low as 5.50 cents and the feeling had been that major refiners would be forced to lower their price to meet this competition.

Shipment of California gasoline into adjoining states, particularly Utah, Arizona, Montana, and Idaho, has been small because of the differential between local and Group 3 quotations favoring the latter. Nominal quotations on tank car movement into this territory has been 5 to 6.50 cents. One trader reported he had failed to get some business on a quotation of 4.875 cents.

Slack demand for natural gasoline caused quotations on this commodity to fall off ½ cent to 5 cents, generally, in tank car lots.

Kerosine was also inactive with the asked price ranging at 4 to 4.50 cents. A sale of 100,000 gallons of this goods was reported made at 4 cents.

Quotations on other products were practically unchanged although several jobbers reported slightly lower prices on heavy oils. Gas and diesel oils were available at $0.70 to $0.80 for 30-34 gravity and fuel oil was quoted at $0.40 to $0.50 with some moving as low as $0.35 to $0.37 a barrel.

Pennsylvania Markets

Bright Stocks Rise

CLEVELAND, July 11.—A reduction of 5 to 15 cents in the crude oil market was announced in the Western Pennsylvania market July 11. Both refiners and brokers said it was too early to have any effect on the market.

Bright stocks featured the market the past week. Prices advanced slowly and at the end of the week reached a minimum of 17 cents. Several refiners reported they were completely sold up on bright stock and out of the open market. Some sellers reported they had no difficulty getting 17.50 cents.

Fuel oil demand was good in all districts. A scarcity of this oil brought the price back up to a minimum of 2.375 cents. Several refiners were forced to try to buy fuel oil to fill their recent sales. Increased cracking was the cause of the scarcity.

A general quieting in the kerosine market was experienced July 6. The price remained fairly steady throughout the week, however, with 45 water white selling at 3.375 cents; 46 at 3.50 cents, and 47 at 3.875 cents.

Gasolines were quiet. Ruling prices were: 58-60, 4.125 cents, 60-62, 4.25 cents, 64-66, 4.50 cents and the 68-70, 5 cents.

Wax was scarce in some districts. New York wax buyers were the cause of this situation. The price range of wax widened to 2 to 2.125 cents.

Correction

Price of Pennsylvania No. 8 color cold test stock, 25 and 35 pour test was published erroneously at 16.25 to 17.00 cents, as of July 6, in the July 8 issue, in the refinery market table on page 83.

Correct price on July 6 was 16.50 to 17.00 cents. Prices are corrected in this issue.

LONDON.—Walter E. Skinner's 22nd annual edition of the Oil and Petroleum Year Book for 1931 is off the press.

This book has become a standard international reference book on oil and allied companies in all parts of the world.

It contains data on 620 English and foreign oil companies, including producers, refiners, dealers, pipeline and tanker carriers and oil finance companies. Names of officials and directors, trade names, properties, number of wells and output, refinery capacities, capitalization and other valuable particulars are included.

The book is published by Walter E. Skinner, 15 Dowgate Hill, Cannon St., London, E. C. 4, England.

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Eastern Domestic Markets

Retail Price Cut Slows Gasoline Buying

Staff Special
NEW YORK, July 11

OPEN market buying of gasoline slowed up considerably in markets south of New York the past week, largely as a result of the reduction in retail prices by Standard Oil Co. of New Jersey.

In all seaboard markets, refiners reported exceptionally heavy shipments of gasoline against contracts. Open market operations were moderately active at New York harbor and points north.

Standard's reduction took the trade pretty much by surprise. Both tank wagon and service station prices were reduced 1 cent in the company's territory except New Jersey. In New Jersey, the service station price only was reduced 1 cent, but discount to dealers was increased from 2 cents to 3 cents off tank wagon. Posted tank wagon price was left unchanged largely because of the large number of consumer contracts based on it, the trade generally believed.

Tank car prices for gasoline reacted but little to the cut in retail prices. Prior to the retail price cut, U. S. Motor with octane number below 65 was offered 0.25 cent lower in the leading markets—New York, Philadelphia and Baltimore. Aside from this, prices showed little change from those quoted the previous week.

Sellers in all markets said it was exceedingly difficult to persuade jobbers to increase their open market takings. In addition to the Standard of New Jersey reduction, the slump in the bulk market at the Gulf together with the general downward revision of crude prices east of the Rockies probably had some influence on the buyer.

Offsetting to some extent the unfavorable developments of the week was the large reduction in gasoline stocks which the American Petroleum Institute reported for the East Coast district for the week ended July 4. The institute's report showed that refiners cut their stocks nearly 18,000,000 gallons along the east coast. This was the largest draft they had made on storage in any one week this year.

While it was generally admitted that the statistical position of gasoline on the East Coast had improved materially, transaction in the Gulf-North Atlantic cargo market tended to dampen sentiment among the trade. Cargoes of gasoline were laid down north of Cape Hatteras at new low prices, and suppliers were offering material more freely than they had been for some time past.

Late in the week Standard of New Jersey announced that effective July 13 it would reduce bunker oil and diesel oil prices 5 cents per barrel at all its North Atlantic and Gulf coast terminals. In some quarters the reduction had been anticipated because of the large volume of distress oil in North Atlantic markets. Cargoes of bunker C oil were reported available along the East Coast at prices substantially lower than the prices quoted by Gulf suppliers.

With the 5-cent cut, posted prices for bunker oil will be: New York, Boston, Baltimore and Norfolk, $0.80; Charleston, $0.75; Baton Rouge, $0.65. Diesel oil will be posted at $1.50 at New York harbor and $1.35 at Baton Rouge.

Gulf Coast Markets

Buyers Less Active; Gasoline Prices Lower

Staff Special
NEW YORK, July 11

BULK markets at the Gulf experienced a breathing spell in the week ended July 11 from the relatively heavy buying which had continued for nearly six weeks. Total volume of open market business closed the past week was just half of what it was the previous week.

Interest from both foreign and domestic buyers, however, still was at rather high pitch. Indications were that considerable business was in the offing. Reductions in Mid-Continent crude prices brought numerous inquiries from buyers who were interested largely in feeling out the market. Inquiries in most instances were indefinite. Suppliers for the most part were not disposed to offer for fear that prices they might make would have a bearish effect on the market. Business closed the past week and also inquiries on which firm suppliers made firm offers established definitely lower prices for all grades of gasoline. No sales were reported of the export grades, but they were offered 0.25 cent lower. U. S. Motor gasoline sold for coastwise shipment at around 2.875 cents a gallon, a little more than 0.25 cent under the last paid price.

Toward the last of the week a French buyer inquired for a mixed cargo of approximately 75,000 barrels for Aug. 15-Sept. 15 loading. About one-half of the cargo is to consist of 64-66, 375 end point gasoline. The remainder is to be divided about evenly between U. S. Motor gasoline, prime white kerosine, gas oil and fuel oil. Details of bids by various suppliers were not available up to the end of the week, although in one instance a supplier asserted he would quote 3.25 cents for the 64-66.

Two cargoes of U. S. Motor gasoline were sold by a leading Independent refiner to a large East Coast consumer-buyer at a price which figures close to 2.875 cents f.o.b. the Gulf. One cargo is to be shipped in August and the other in September.

No open market heavy oil business was closed during the week although the inquiry for this class of material was active. Buyers sought two cargoes of bunker C fuel oil. Suppliers continued to quote $0.60 per barrel for this oil in cargo lots, and while it was thought in some quarters that this price could be shaded on firm offer, a lower price had not been established by the end of the week.

A Cuban buyer was in the market for a 50,000-barrel cargo of gas oil. Prices which suppliers were offering on this business were not available Saturday. Quotations made for other business earlier in the week, however, were 0.5 cent a gallon lower than the previous week's market for this commodity.

Foreign crude oil markets were quiet as a result of the lower prices for domestic crudes. Quotations for heavy Panuco remained unchanged. The Venezuelan market remained nominal.

Great Lakes Line Completed

MINNEAPOLIS, Minn., July 10.—Great Lakes Pipe Line Co.'s gasoline pipe line has been completed to the Twin Cities. A terminal has been built at New Brighton to serve Minneapolis, St. Paul and nearby territory.

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WHITE ROSE
GASOLINE
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Wax Markets

Buyers Show Little Interest

NEW YORK, July 11.—Wax markets were relatively quiet the past week. Of the New Orleans and New York markets, the former probably was the more active. Prices in both markets hung fairly close together. This was due to the continued moderate activity on the part of far eastern buyers as against only nominal demand from European buyers.

Scale prices reacted slightly from the rise of two weeks ago during the period of covering by the European short interest. The market for white crude scale was 2 cents a pound flat at both New Orleans and New York. Sellers who recently had quoted slightly higher prices, reported little success in obtaining orders and indicated they would accept 2 cents.

Fully refined prices, generally speaking, were steady. Some of the higher melting point grades reacted slightly but for the most part prices showed little change over the previous week.

Gulf Lube Prices Steady

HOUSTON, July 11.—Gulf Coastal lubricant markets were weak but unchanged after crude price reductions of July 8. Refiners said that prices were already so close to the cost of manufacture and that the crude cut had been so far discounted generally that no immediate revisions were applied to finished materials.

Western Reserves Will Golf

CLEVELAND, July 10.—Golfers will show their ability and compete for prizes in a blind handicap at the Western Reserve Petroleum Club's, Cleveland, annual golf tournament at the Hawthorne Valley Country club, July 22.

Play begins at 1:30 p.m. Dinner will be served at 7. "Barnyard" golf and fun for non-golfers is promised by A. C. Ellinger, Canfield Oil Co., president of the club.

J. H. Graham, Oil Equipment Repair & Sales Co., will put on a demonstration which is described in a recent club bulletin as one "which no oil or equipment man can afford to miss."

KEARNY, N. J.—Harry B. MacLaughlin, formerly with the Vacuum Oil Co., has been appointed sales manager of the Emark Battery Corp., a division of Thomas A. Edison, Inc., here. The position is a new one, the Emark company planning to enter the replacement market.

Why not make "AIR SERVICE" pay you something?

There are more ways of being accommodating than by giving away or doing things for nothing. Carrying every-day accommodation merchandise is one which the motorist appreciates as fully as free air . . . And it helps out with the overhead as well.

Seldom a day passes that the average service station operator doesn't find customers needing valve caps, new valve cores or a good tire gauge. The Schrader "Reddy Seller" outfit fits into that sort of picture perfectly. The unique display cabinet has a high reminder value—yet it takes up very little counter room. (Diameter 6"; height 15"). It contains a small but complete stock of Schrader Valve Cores, Valve Caps and Tire Gauges—all handy and orderly.

The assortment below costs less than the wholesale price of the different items if purchased separately. *The cabinet doesn't cost a cent.* Refills are always obtainable on short notice. The profit margin is attractive.

For "100 per cent air service" no up-to-date filling station can afford to be without this fast-working revenue producer. We invite station-operating gasoline distributors to write for further details. A. Schrader's Son, Inc., Brooklyn, N. Y.

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"REDDY SELLER" CABINET (FREE)
And Special Gas Station Assortment No. 8006

100 No. 4000 Valve Cores.
50 No. 880 Valve Caps.
25 No. 935 Valve Caps, for bent valves. (The above in metal boxes)
3 No. 5050 Balloon Tire Gauges (flat-bar indicator).
1 No. 5587 Star Wrench. 1 No. 3283 Valve Repair Tool. 1 No. 5328 Pump Connection. 2 No. 6589 Double-use Tools. 2 No. 4520 Tools for removing damaged valve cores.

Complete Seaboard Market

Export Markets for whole year given in OIL HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in Florida and South Carolina.)

	Prices July 13	Prices July 6	Prices June 29
U. S. MOTOR GASOLINE, Below 65 Octane Number			
New York Harbor	5.00 – 5.25	5.25	.....
Philadelphia District	5.00 – 5.25	5.25	.....
Baltimore District	5.00 – 5.25	5.00 – 5.25	.....
U. S. MOTOR GASOLINE, 65 Octane Number and Above			
New York harbor	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
Portland district	6.00	6.00	6.00
Boston district	5.75	5.75	5.75
Providence district	5.75	5.75	5.75
Philadelphia district	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
Baltimore district	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
Norfolk district	5.50	5.50	5.50
Charleston district	5.50	5.50	5.50
Savannah district	5.50	5.50	5.50
Jacksonville district	5.50	5.50	5.50
CALIFORNIA U. S. MOTOR GASOLINE			
New York harbor	.....	Discontinued	5.25 – 5.50
Philadelphia district	.....	Discontinued	5.25 – 5.50
Baltimore district	.....	Discontinued	5.25 – 5.50
‡DOMESTIC AVIATION GASOLINE			
New York harbor	9.50 –12.00	9.50 –12.00	9.50 –12.00
Philadelphia	9.50 –12.00	9.50 –12.00	9.50 –12.00
Baltimore	11.00 –12.00	11.00 –12.00	11.00 –12.00
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00
WATER WHITE KEROSINE			
New York harbor	4.75	4.75	4.75
Philadelphia district	4.75	4.75	4.75
Baltimore district	5.00	5.00	5.00
GAS OIL: 28-34 Gravity			
New York harbor	3.75 – 4.00	3.75 – 4.00	3.75 – 4.00
Boston district	4.00 – 4.25	4.00 – 4.50	4.00 – 4.50
FURNACE OIL: 36-40 Gravity			
New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Boston district	5.00 – 5.25	5.00 – 5.375	5.00 – 5.50
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York harbor	$0.80	$0.85	$0.85
Boston district	$0.80	$0.85	$0.85
DIESEL OIL			
New York harbor	$1.50	$1.55	$1.55

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	July 13	July 6	June 29
CYLINDER OILS (Pennsylvania Products)			
Bright stock, No. 8 color	23.00 –24.00	22.00 –24.00	22.00 –25.00
Bright stock, No. 6½ color diluted	21.00 –23.00	21.00 –23.00	21.00 –24.00
600 D filtered	22.00 –24.00	22.00 –24.00	22.00 –25.00
600 Warren E filtered	17.00 –19.00	17.00 –19.00	17.00 –20.00
600 stm. refd. unfiltered	13.50 –15.00	13.50 –15.00	14.00 –16.00
650 stm. refd. unfiltered	16.00 –18.00	16.00 –18.00	16.50 –19.00
600 flash steam refined	16.50 –19.00	16.50 –19.00	16.50 –19.00
630 flash, steam refined	22.00 –24.00	22.00 –24.00	22.00 –24.00
RED PARAFFIN OILS (Vis. 100°)			
300 vis. No. 6½ color	17.00 –20.00	17.00 –20.00	17.00 –20.00
250 vis. No. 6 color	16.50 –17.50	16.50 –17.50	16.50 –17.50
200 vis. No. 6 color	14.75 –17.00	14.75 –17.00	14.75 –17.00
PALE PARAFFIN OILS (Vis. 100°)			
230 vis. No. 3¾ color	21.50	21.50	21.50
180 vis. No. 3¼ color	18.00 –20.00	18.00 –20.00	18.00 –20.00
100 vis. No. 2¼ color	12.50 –15.00	12.50 –15.00	12.50 –15.00

Wax Market

(Melting points are A.M.P. method. Prices in cents per pound, f.a.s. carload lots.)

NEW YORK	July 13	July 6	June 29
124-126 Yellow crude scale	1.95	1.95	1.95
122-124 White crude scale	2.00	2.00 – 2.10	2.00 – 2.10
124-126 White crude scale	2.00	2.00 – 2.10	2.00 – 2.10
123-125 Fully refined	2.875– 3.00	2.875– 3.125	2.875– 3.125
125-127 Fully refined	2.875– 3.125	2.875– 3.125	2.875– 3.125
128-130 Fully refined	3.125– 3.375	3.125– 3.375	3.125– 3.375
130-132 Fully refined	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
133-135 Fully refined	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375
135-137 Fully refined	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625
NEW ORLEANS			
124-126 Yellow crude scale	1.95	1.95	1.95
122-124 White crude scale	2.00	2.00 – 2.10	2.00 – 2.10
124-126 White crude scale	2.00	2.00 – 2.10	2.00 – 2.10
123-125 Fully refined	2.875– 3.00	2.875– 3.125	2.875– 3.125
125-127 Fully refined	2.875– 3.125	2.875– 3.125	2.875– 3.125
128-130 Fully refined	3.125– 3.375	3.125– 3.375	3.125– 3.375
130-132 Fully refined	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
133-135 Fully refined	4.25	4.25 – 4.375	4.25 – 4.375

Gulf Coast Bulk Market

(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)

GASOLINE	Prices July 13	Prices July 6	Prices June 29
U. S. Motor	2.875– 3.00	3.125– 3.375	3.125– 3.50
60-62, 400 e.p.	3.00 – 3.125	*3.25	3.25 – 3.50
61-63, 390 e.p.	*3.125– 3.25	*3.375	*3.50
64-66, 375 e.p.	3.25 – 3.375	3.50	3.50
U. S. Motor, (cases cargoes)	$1.50	$1.50	$1.50
64-66, cases (cargoes)	$1.60	$1.60	$1.60
*Nominal.			
KEROSINE			
44 water white	3.25	3.25 – 3.50	3.25 – 3.50
41-43 prime white	3.00	3.00 – 3.25	3.00 – 3.375
Water white, cases (cargoes)	$1.35	$1.35	$1.35
Prime white, cases (cargoes)	$1.25	$1.25	$1.25
GAS & BUNKER OILS			
*26-30 translucent gas oil	2.00 – 2.25	2.00 – 2.50	2.50
*30 plus translucent gas oil	2.00 – 2.25	2.00 – 2.50	2.50
Grade C bunker oil, for ships' bunkers, per bbl.	$0.65	$0.70	$0.70
Grade C bunker oil, per bbl. in cargoes	$0.55 –$0.60	$0.60	$0.60

*Less than ½ of 1% sulphur.
†Represents sales only.

MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.45	$0.45	$0.45
Grade C bunker oil for bunkering, taxes paid, per bbl.	$0.65	$0.70	$0.70

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)

100 vis. No. 2 unfiltered pale	4.00 – 5.00	4.75 – 5.00	4.75 – 5.00
200 vis. No. 3 unfiltered pale	6.00 – 7.00	6.75 – 7.00	6.75 – 7.00
300 vis. No. 3 unfiltered pale	7.00 – 8.00	7.50 – 8.00	7.50 – 8.00
500 vis. No. 3½ unfiltered pale	8.00 – 9.00	8.75 – 9.00	8.75 – 9.00
750 vis. No. 4 unfiltered pale	9.00 –10.00	10.00 –10.25	10.00 –10.25
1200 vis. No. 4 unfiltered pale	11.00 –12.00	11.75 –12.00	11.75 –12.00
200 vis. No. 5-6 red oil	5.00 – 6.00	5.75 – 6.00	5.75 – 6.00
300 vis. No. 5-6 red oil	6.00 – 7.00	6.75 – 7.00	6.75 – 7.00
500 vis. No. 5-6 red oil	7.00 – 8.00	7.50 – 8.00	7.50 – 8.00
750 vis. No. 5-6 red oil	8.00 – 9.00	8.75 – 9.00	8.75 – 9.00
1200 vis. No. 5-6 red oil	10.00 –11.00	10.75 –11.00	10.75 –11.00

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	July 13	July 6	†June 29
Gasoline, U. S. Motor, 53-55 Gravity	3.25 – 4.00	3.25 – 4.00	3.25 – 4.00
Gasoline, U. S. Motor-blends and special cuts	3.375– 4.125	3.375– 4.125	3.375– 4.125
Gasoline, 400 e.p. blend	3.50 – 4.25	3.50 – 4.25	3.50 – 4.25
Gas oil, 30-34 per bbl.	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
Diesel Oil, 27 plus, per bbl.	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
Bunker oil, 14-18 per bbl.	$0.55 –$0.70	$0.55 –$0.70	$0.55 –$0.70
Fuel oil, 14-18 per bbl.	$0.55 –$0.70	$0.55 –$0.70	$0.55 –$0.70
Kerosine, 38-40 w.w., 125-150 flash, per gal.	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
Cased Goods			
Gasoline, U. S. Motor	$1.45 –$1.55	$1.45 –$1.55	$1.45 –$1.55
Gasoline, 400 e.p. blend	$1.55 –$1.65	$1.55 –$1.65	$1.55 –$1.65
Kerosine, 38-40 w.w., 125-150 flash	$1.40 –$1.45	$1.40 –$1.45	$1.40 –$1.45

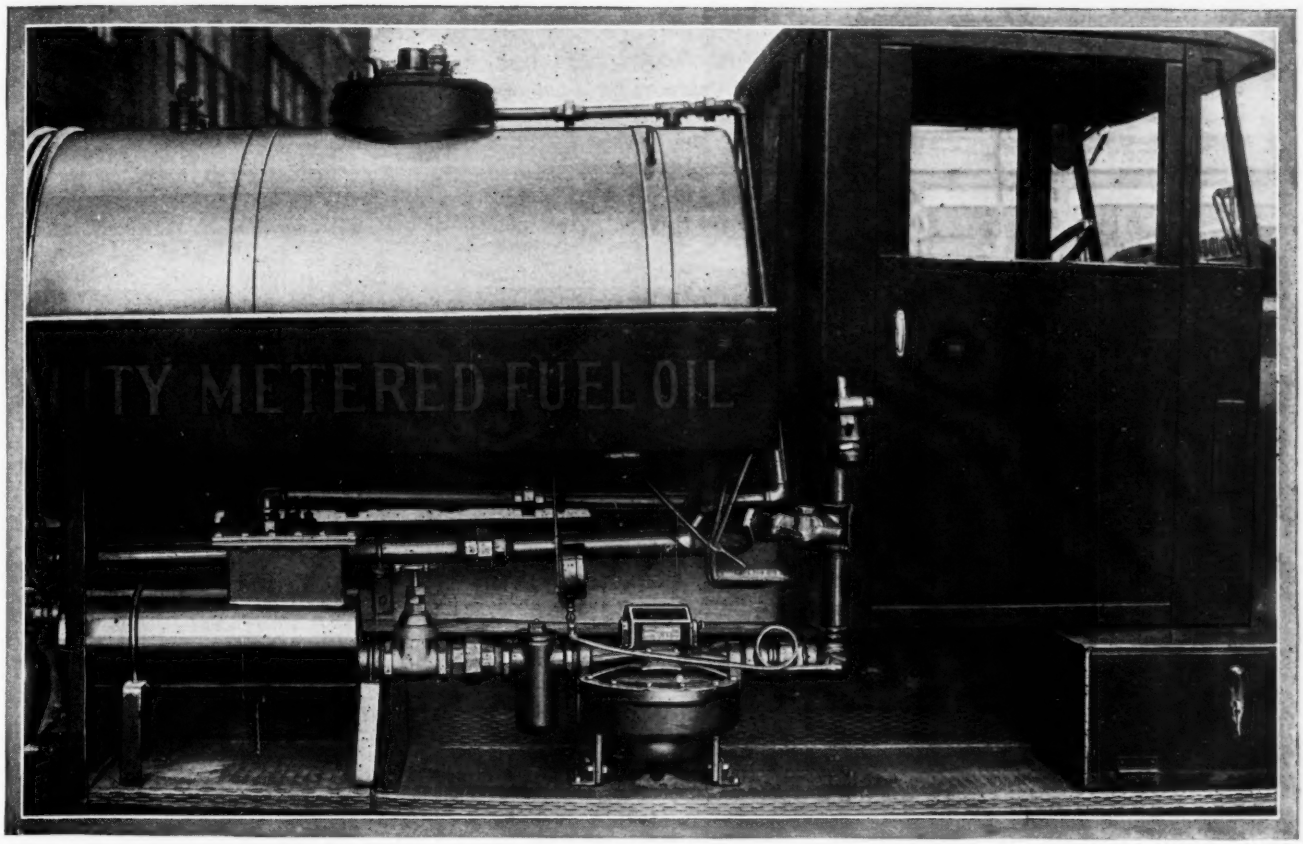
†June 29 prices are nominal in Pacific Export Market.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	July 13	
	Crude & /or Fuel	Refined Oil & /or Spirits
Calif. to U. K. or Continental ports*	†15	††15
Gulf to U. K. or Continental ports*	9	9
North Atlantic to U. K. or Continental ports*	7/6	7/6
Calif. to North Atlantic ports (not E. of N.Y.)	$0.45-$0.47	$0.45-$0.47
Gulf to North Atlantic ports (not E. of N. Y.)**	14-15	15

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate, for Tampico 2c to 3c per bbl. additional. †Last paid 12/6; owners ask 15. ††Last paid 11/6; owners ask 15.



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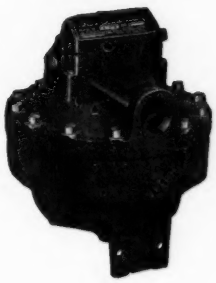

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Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect July 13, 1931, as Posted by Principal Marketing Companies

Latest Changes in Tank Wagon Prices

Gasoline

S. O. New Jersey—T. w. and s. s. cut 1c, thru territory, except New Jersey t. w. unchanged and Charlotte s. s. unchanged, **July 7.**

Dealer discount up 1c, thru New Jersey, to 3c, **July 7.**

Atlantic Refining—T. w. and s. s. cut 1c, Baltimore, Annapolis, Hagerstown, Richmond, Wilmington, **June 8.**

S. s. only cut 1c, Camden, Atlantic City, Trenton, **June 8.**

S. s. only cut 1.5c, Springfield, 1.3c, Worcester, both to 13c, including 3c tax, and 1c, Hartford, to 13.5c, including 2c tax, all **June 3.**

S. s. only cut 1.5c, Providence, to 11c, including 2c tax, **June 7.**

S. O. Indiana—Stanolind Blue gasoline changes:

S. s. only cut 1.1c, Minneapolis, to 10.9c including 3c tax, **July 6.**

S. s. only cut 4/10c, Detroit, to 9.1c, **July 2;** t. w. only cut 4/10c, to 9.1c, **July 4;** s. s. only cut ½c to 8.6c, all including 3c tax, **July 9.**

S. s. only cut 4/10c Indianapolis, to 12.9c, including 4c tax, **June 17.**

S. s. only cut 2.4c, Saginaw, to 12.5c, **June 13;** t. w. only cut 2.4c, to 12.5c, including 3c tax, **June 16.**

S. s. cut 2.6c, Mankato to 12.5c, including 3c tax, **June 20;** t. w. cut 2.6c, to 12.5c, **June 30.**

T. w. only cut 1.1c, Milwaukee, to 12c, including 4c tax, **June 29.**

S. s. only cut 1c, Des Moines, to 8.9c, including 3c tax, **June 20.**

S. O. Ohio—S. s. only cut 1c, thru Ross County, to 15c including 4c tax, **July 11.**

S. s. only cut 1c, Fulton and Lucas Counties, both to 15c including 4c tax, **July 13.**

S. O. Nebraska—T. w. up 2.35c, s. s. up 3.35c, Omaha, to 15.25c and 16.25c respectively, including 4c tax, **July 4.**

Magnolia Petroleum—T. w. cut 1c, s. s. cut 2c, Ft. Worth, to 11c and 12c respectively, including 4c tax, **July 2.**

S. s. only cut 2c, Houston and El Paso to 14c and 15c respectively including 4c tax, **July 2.**

T. w. cut 2c, s. s. cut 4c, San Antonio, to 12c and 14c respectively including 4c tax, **July 2.**

S. s. only cut 1c, Muskogee, to 14c, including 5c tax, **July 1.**

T. w. and s. s. up 1c, Oklahoma City and Tulsa, to 11c and 13c respectively, including 5c tax, **June 22.**

T. w. and s. s. cut 1c, Ft. Smith, both to 14c, including 5c tax, **July 1.**

T. w. only cut ½c, Little Rock, to 15½c including 6c tax, **June 25.**

Canada—T. w. and s. s. up 1c, Prince Edward Island, to cover tax increase to 6c, **July 1.**

Kerosine

S. O. New York—Correction: Kerosine t. w. price at Augusta, Me. has been incorrectly shown, thru typographical error, at 12c since the May 20 issue. Correct price has been 12.8c since March 6, 1930.

Kerosine cut 1c, Syracuse, to 9.5c, t.w., **July 10.**

Canada—Kerosine cut 5c, Winnipeg, Regina, Edmonton, Calgary, **June 10.**

S. O. NEW YORK

	Gasoline T.W.	Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings	11.3	2	13.3	15.3	10
Borough of Richmond	11.7	2	13.7	15.7	12
Albany, N. Y.	12.6	2	14.6	16.6	10.5
Buffalo, N. Y.	10.8	2	12.8	12.8	10
Rochester, N. Y.	11	2	13	13	10
Syracuse, N. Y.	10	2	12	14	9.5
Boston, Mass.	11.5	3	14.5	16.5	10
Augusta, Me.	12.8	4	16.8	18.8	12.8
Manchester, N. H.	12.4	4	16.4	18.4	10
Burlington, Vt.	13.3	4	17.3	19.3	11
New Haven, Conn.	12.6	2	14.6	16.6	10
Providence, R. I.	10.5	2	12.5	14.5	10

Discounts on gasoline: 2c per gal. off posted t.w. price to dealers, thru territory, except 3c to dealers in New York City, effective Feb. 20, 1931.

ATLANTIC REFINING

Pittsburgh, Pa.	11	*	11	16	12
Philadelphia, Pa.	11	*	11	16	12
Allentown, Pa.	11	*	11	16	12
Erie, Pa.	11	*	11	16	12
Scranton, Pa.	11	*	11	16	12
Altoona, Pa.	11	*	11	16	12
Dover, Del.	11	3	14	16	12
Wilmington, Del.	11	3	14	16	12
Boston, Mass.	11.5	3	14.5	16.5	11
Springfield, Mass.	12.5	3	15.5	16	10
Worcester, Mass.	12.3	3	15.3	16	11
Fall River, Mass.	12	3	15	17	11
Providence, R. I.	10.5	2	12.5	13	10
Hartford, Conn.	12.5	2	14.5	15.5	10
New Haven, Conn.	12.6	2	14.6	16.6	10
Atlantic City, N. J.	10.7	3	13.7	14.7	10.5
Camden, N. J.	9.8	3	12.8	13.8	9.6
Trenton, N. J.	10.2	3	13.2	14.2	10
Annapolis, Md.	10.2	4	14.2	15.2	10
Baltimore, Md.	9.4	4	13.4	14.4	8.5
Hagerstown, Md.	10.9	4	14.9	15.9	10.7
Richmond, Va.	9.9	5	14.9	15.9	10.7
Wilmington, N. C.	9.6	6	15.6	16.6	9.4
Brunswick, Ga.	12	6	18	20	**14
Jacksonville, Fla.	11	6	17	18	12

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.

*3-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosine prices include 1c state tax.

S. O. KENTUCKY

Lexington, Ky.	12	5	17	18	12
Louisville, Ky.	11	5	16	17	11
Paducah, Ky.	12	5	17	18	11
Covington, Ky.	11	5	16	17	11
Jackson, Miss.	11	5	16	18	11.5
Vicksburg, Miss.	11	5	16	16	11.5
Birmingham, Ala.‡‡	10	4	14	16	13
Mobile, Ala.‡	12	4	16	18	13
Montgomery, Ala.*	12	4	16	18	13.5
Macon, Ga.	10	6	16	18	†12
Atlanta, Ga.	8	6	14	16	*†12.5
Augusta, Ga.	12	6	18	20	†14
Savannah, Ga.	10	6	16	18	†12
Jacksonville, Fla.	11	6	17	18	12
Miami, Fla.	12	6	18	20	13
Tampa, Fla.	11	6	17	18	12
Pensacola, Fla.**	13	6	19	20	13

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax.

*†3c discount off t.w. price of oil at Atlanta, meeting competition.

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Gasoline Total T.W.	Gasoline S.S.	Oil T.W.
Atlantic City, N. J.	10.7	3	13.7	14.7	10.5
Newark, N. J.	9.7	3	12.7	13.7	9.5
Annapolis, Md.	10.2	4	14.2	15.2	10
Baltimore, Md.	9.4	4	13.4	14.4	8.5
Cumberland, Md.	11.2	4	15.2	16.2	11
Washington, D. C.	9.9	2	11.9	12.9	9.7
Danville, Va.	11.0	5	16.0	17.0	10.8
Norfolk, Va.	9.5	5	14.5	15.5	9
Petersburg, Va.	10.5	5	15.5	16.5	10.3
Richmond, Va.	9.9	5	14.9	15.9	9.7
Roanoke, Va.	11.2	5	16.2	17.2	11.0
Charleston, W. Va.	10.7	4	14.7	15.7	10.5
Keyser, W. Va.	11.3	4	15.3	16.3	11.1
Parkersburg, W. Va.	9.4	4	13.4	14.4	9.2
Wheeling, W. Va.	10.6	4	14.6	15.6	10.4
Charlotte, N. C.	11.5	6	17.5	17.0	11.3
Hickory, N. C.	11.8	6	17.8	18.8	11.6
Mt. Airy, N. C.	11.7	6	17.7	18.7	11.5
Raleigh, N. C.	11.4	6	17.4	18.4	11.2
Salisbury, N. C.	11.7	6	17.7	18.7	11.5
Charleston, S. C.	9.5	6	15.5	16.5	9.3
Columbia, S. C.	11.4	6	17.4	18.4	11.2
Spartanburg, S. C.	11.7	6	17.7	18.7	11.5

Note: 2c per gallon discount off retail t.w. price of gasoline to dealers thru S. O. New Jersey territory, except Maryland, New Jersey and Washington, D. C. where discount is 3c.

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 2/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 1/50c to 1/2c on both; Nebraska 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 1/25c on both.

Kerosine inspection fees only, per gallon: Iowa 7/100c; Michigan, 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect July 13, 1931, as Posted by Principal Marketing Companies

S. O. INDIANA

‡(Red Crown Gasoline)

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Chicago, Ill.	11	3	14	14	9
Decatur, Ill.	11.4	3	14.4	14.4	9
E. St. Louis, Ill.	10.7	3	13.7	13.7	8.2
Joliet, Ill.	11.4	3	14.4	14.4	9
Peoria, Ill.	11.4	3	14.4	14.4	9
Quincy, Ill.	11.2	3	14.2	14.2	8.8
Springfield, Ill.	11.4	3	14.4	14.4	9
Indianapolis, Ind.	11.3	4	15.3	15.3	10.1
Evansville, Ind.	11.1	4	15.1	15.1	9.9
South Bend, Ind.	11.4	4	15.4	15.4	10.2
Detroit, Mich.	11.8	3	14.8	14.8	10.7
Grand Rapids, Mich.	11.7	3	14.7	14.7	10.6
Saginaw, Mich.	11.9	3	14.9	14.9	10.8
Green Bay, Wisc.	11.6	4	15.6	15.6	9.4
Madison, Wisc.	11.3	4	15.3	15.3	9.1
Milwaukee, Wisc.	11.1	4	15.1	15.1	8.9
La Crosse, Wisc.	12.2	4	16.2	16.2	10
Minneapolis, Minn.	12.2	3	15.2	15.2	9.9
Duluth, Minn.	12.5	3	15.5	15.5	9.9
Mankato, Minn.	12.1	3	15.1	15.1	9.7
Des Moines, Ia.	11.5	3	14.5	14.5	9.3
Davenport, Ia.	11.5	3	14.5	14.5	9.3
Sioux City, Ia.	11.1	3	14.1	14.1	8.9
Mason City, Ia.	11.5	3	14.5	14.5	9.3
St. Louis, Mo.	*10.9	2	12.9	12.9	8.3
Kansas City, Mo.	†11.9	2	13.9	13.9	7.6
St. Joseph, Mo.	†11.5	2	13.5	13.5	7.5
Fargo, N. D.	13.9	3	16.9	16.9	11.9
Grand Forks, N. D.	14.2	3	17.2	17.2	12.2
Minot, N. D.	13.9	3	16.9	16.9	11.9
Pierre, S. D.	12	4	16	16	10.4
Huron, S. D.	12.3	4	16.3	16.3	10.7
Wichita, Kans.	9.8	3	12.8	12.8	7.8
Bartlesville, Okla.	8	5	13	16	7.5

‡Stanolind Blue prices are normally 2c under those shown above. At the following points, prices are below normal on Stanolind Blue:

(Stanolind Blue Gasoline)

	T.W.	Tax	Total T.W.	S.S.
Chicago	8	3	11	10
Springfield, Ill.	9.4	3	12.4	10
Joliet, Ill.	9.4	3	12.4	11.4
St. Louis	*6.4	2	8.4	8.4
St. Joseph, Mo.	†6.9	2	8.9	8.9
Detroit, Mich.	6.1	3	9.1	8.6
Grand Rapids, Mich.	9.7	3	12.7	11.1
Marquette, Mich.	11.9	3	14.9	14.9
Saginaw, Mich.	9.5	3	12.5	12.5
Wichita, Kan.	6.8	3	9.8	8.8
Mankato, Minn.	9.5	3	12.5	12.5
Minneapolis, Minn.	10.2	3	13.2	10.9
South Bend, Ind.	9.4	4	13.4	12.5
Indianapolis, Ind.	9.3	4	13.3	12.9
Davenport, Ia.	9.5	3	12.5	10.9
Des Moines, Ia.	9.5	3	12.5	8.9
Sioux City, Ia.	9.1	3	12.1	9.1
Milwaukee, Wis.	8	4	12	12
La Crosse, Wis.	10.2	4	14.2	12.5

*Includes city tax of ½c.
†Includes city tax of 1c.
Discounts: Q.D.A., effective May 11, 1931, on gasoline.

To re-sellers, thru territory, except Chicago:

	Under 75,000 Gals. Off S.S. Price	75,000 Gals. and Over Off T.W. Price
Ethyl gasoline	3c	4c
Red Crown gasoline	2.5c	3.5c
Stanolind Blue	1c	2c

In Chicago, in any quantity, discounts are 4c per gal. on Ethyl gasoline, 3.5c on Red Crown, and 2c on Stanolind Blue, discounts being off service station prices in quantities up to 75,000 gallons, and off t.w. price in quantities of 75,000 gallons and over.

To consumers, thru territory, except Chicago:

	1,000 to 75,000 Gallons Off T.W. Price	75,000 Gals. and Over Off T.W. Price
Ethyl gasoline	3c	4c
Red Crown gasoline	2.5c	3.5c
Stanolind Blue	1c	2c

In Chicago, in quantities over 1,000 gallons: Ethyl gasoline, 4c; Red Crown 3.5c; Stanolind Blue, 2c, all discounts being off tank wagon price.

S. O. OHIO

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Ohio statewide	11	4	15	16	12
Pickaway county	10	4	14	14	12
Clark, Cuyahoga, Franklin, Fulton, Lucas, Miami, Montgomery, Preble, Ross, Summit and Williams Counties	11	4	15	15	12

Note: Discount on gasoline to dealers and commercial consumers generally thru Ohio is 2c per gal. off above t.w. prices except in counties where prices are below statewide schedule, discount is generally 3c.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

S. O. NEBRASKA

Omaha, Neb.	11.25	4	15.25	16.25	9.25
McCook, Neb.	12	4	16	17.75	10.75
Norfolk, Neb.	11.75	4	15.75	16.75	9.75
North Platte, Neb.	12.75	4	16.75	17.75	10.5
Scottsbluff, Neb.	12	4	16	16	10.25

Note: Discounts to dealers, off normal service station prices: Red Crown, 2.5c per gal.; Nebraska Blue, 1c.

S. O. LOUISIANA

	Gasoline				Oil
	Posted Retail T.W.	Tax	Total Posted Retail T.W.	Posted Retail S.S.	T.W.
Little Rock, Ark.	9.5	6	15.5	16	11
Alexandria, La.	9.5	*6	15.5	16.5	†12
Baton Rouge, La.	9.5	5	14.5	15.5	†12
New Orleans, La.	9.5	*6	15.5	16.5	†12
Lake Charles, La.	9.5	*6	15.5	16.5	†12
Shreveport, La.	9.5	5	14.5	15.5	†12
Lafayette, La.	9.5	*6	15.5	16.5	†12
Bristol, Tenn.	12.5	6	18.5	19.5	14
Chattanooga, Tenn.	11.5	6	17.5	18.5	12
Knoxville, Tenn.	12	6	18	19	13.5
Nashville, Tenn.	11	6	17	18	12.5
Memphis, Tenn.	8	6	14	15	10

Note: Discounts in S. O. La. territory: To dealers and commercial consumers from the tankwagon, 2c per gal. off posted retail t.w. price.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

MAGNOLIA PETROLEUM

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Muskogee, Okla.	7	5	12	14	8
Oklahoma City	6	5	11	13	7
Tulsa, Okla.	6	5	11	13	8
Fort Smith, Ark.	9	5	14	14	11
Little Rock, Ark.	9.5	6	15.5	16	11
Texarkana, Ark.*	12	*4	16	16	10
Dallas, Tex.	9	4	13	14	8
Fort Worth, Tex.	7	4	11	12	8
Houston, Tex.	8	4	12	14	11
San Antonio, Tex.	8	4	12	14	10
El Paso, Tex.	9	4	13	15	12

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 6c Arkansas tax applies.

†Fort Smith gasoline prices include Oklahoma tax of 5c; outside Fort Smith, Arkansas tax of 6c applies.

CONTINENTAL OIL

Denver, Colo.	10	4	14	17	12.5
Pueblo, Colo.	10	4	14	17	12
Grand Junc., Colo.	9	4	13	16	14.5
Casper, Wyo.	11	4	15	18	10
Cheyenne, Wyo.	12	4	16	19	11.5
Butte, Mont.	12	5	17	20	16
Helena, Mont.	15	5	20	23	16
Salt Lake City, Utah	10	4	14	17	16
Boise, Ida.	†14	5	†19	22	18
Twin Falls, Ida.	†13	5	†18	..	18
Albuquerque, N. M.	11	*6	17	21	14

*Tax includes 5c state tax and 1c city tax.

†Less 1c per gal. discount off t.w. to dealers at Boise; less 3c at Twin Falls.

S. O. CALIFORNIA

	State Tax	Gasoline Tank Truck	Gasoline *Retail	Oil T.W.
San Francisco, Cal.	3	13.5	16.5	15.5
Los Angeles, Cal.	3	13	16	15.5
Fresno, Cal.	3	13.5	16.5	17
Phoenix, Ariz.	5	14.5	17.5	20
Reno, Nev.	4	17.5	20.5	19
Portland, Ore.	4	15	18	16.5
Seattle, Wash.	5	16	19	20.5
Spokane, Wash.	5	17.5	20.5	20.5
Tacoma, Wash.	5	16	19	20.5

Note: No discounts off above gasoline prices; tank truck prices are those to resale trade; wholesale prices are generally 6c above tank truck prices, except at Phoenix, 1c.

*Retail prices are those of Standard Stations, Inc., marketing subsidiary of the Standard Oil Co. of California.

CANADA

Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
ONTARIO					
Toronto	16	5	21	24.5	17
Ottawa	17	5	22	25.5	18
North Bay	20	5	25	30.5	21
Fort William	19.5	5	24.5	28	19.5
Border Cities, including Windsor	16	5	21	24.5	15
MANITOBA					
Winnipeg	18	5	23	26.5	13.5
SASKATCHEWAN					
Regina	22	5	27	31	17
ALBERTA					
Edmonton	23	5	28	31.5	18
Calgary	19.5	5	24.5	28	14.5
BRITISH COLUMBIA					
Vancouver	21	5	26	28	22
QUEBEC					
Montreal	17	5	22	25.5	18
Quebec City	19	5	24	27.5	20
Three Rivers	19	5	24	27.5	20
NEW BRUNSWICK					
St. John	18.5	5	23.5	27.5	20.5
Moncton	18.5	5	23.5	27.5	20.5
NOVA SCOTIA					
Halifax	18.5	5	23.5	27.5	20.5
PRINCE EDWARD ISLAND					
Charlottetown	18.5	6	24.5	28.5	20.5

Note: In districts surrounding these points 1c additional is added to city price.

NAPHTHA PRICES

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	10.7	12.7	14.2
Detroit	13.4	14.9	15.7
Kansas City	†11.9	†13.4	†14.2
Milwaukee	12.4	*15.9	*16.7
Minneapolis	**16.7	**18.2	**19
St. Louis	11.6	13.1	13.9
New York		14	20
Boston		17	20

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)

New York Harbor	9.50
Philadelphia district	9.50
Providence	10.00

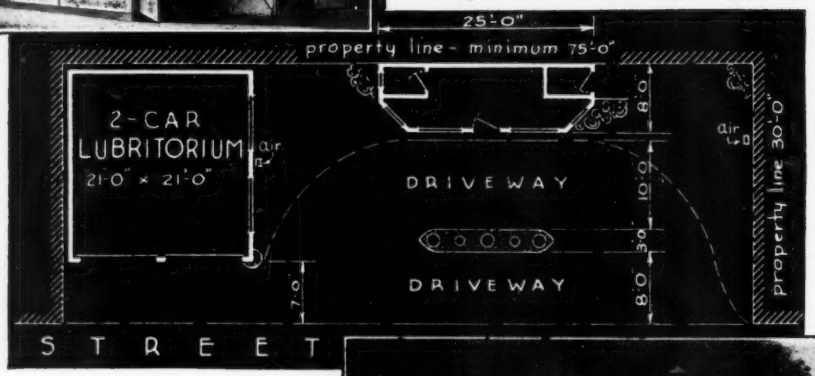
Tank Wagon or Steel Barrels

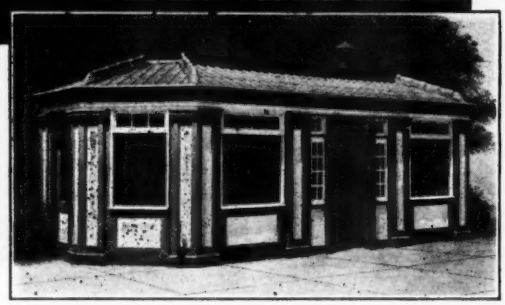
New York City	14
Syracuse	17
Rochester	17
Buffalo	16
Providence	17
Boston	17
Bridgeport	15
Newark	16
Philadelphia	14
Lancaster	17
Altoona	17
Baltimore	17

Note: 2c off above t.w. prices to large buyers in some instances.

(*Continued on Page 92*)

From the word "GO," EDWARDS Filling Stations Pay DIVIDENDS





EDWARDS' Filling Stations go up like "greased lightning", fit into their surroundings like a setting; dominate day and night and "grow" as you expand, economically.

The above layout is a typical Edwards plan, with everything worked out scientifically for economy of time, space and investment.

Each Edwards Filling Station, Lubritorium, Parking Lot Office, etc. is an example of efficiency of design and construction, which have made them popular with the leaders of the industry for the past thirty years.

Edwards Spanish Metal Tile is the crowning glory of more than half the distinctive service stations.

This long and close association with the industry's problems has given us valuable facts and figures that may be helpful to you. Write, giving your lot dimensions and frontage.

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524-544 Eggleston Ave. Cincinnati, Ohio

BETHLEHEM WAX PLANT EQUIPMENT

Filter Presses — *Wax Moulding Presses*
Wax Distillate Chilling Machines — *Scale Wax Cooling Drums*
Wax Testing Presses — *Paraffine Wax Sweater Plants*
Complete Wax Plants designed and built
Pumps, Stills, Towers, Condensers, and other Oil Refinery Equipment
Oil Burning Systems

BETHLEHEM STEEL COMPANY, *General Offices:* ***Bethlehem, Pa.***

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

Pacific Coast Distributer: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

Crude Price Changes

PITTSBURGH — July 11 Joseph Seep Purchasing Agency reduced all grades of Pennsylvania crude, including Corning, O. 15 cents, except Macksburg, O. district cut 5 cents. Last previous change was a cut of 25 cents on June 3, except Corning which was cut 15 cents.

New prices are: in National Transit lines, $1.35; in Southwest Pennsylvania lines, $1.20; in Eureka lines, $1.10; Macksburg, O. district in Buckeye lines, $0.95; and Corning in Buckeye lines, $0.50.

On the same date Tidewater Pipe Co., Ltd., cut Bradford-Allegany district crude 15 cents, to new price of $1.60 per barrel.

PITTSBURGH—July 11 Pure Oil Co. reduced Midland, Mich. crude 15 cents, to new price of 37 cents.

TULSA—July 9 Stanolind Crude Oil Purchasing Co. reduced Oklahoma, Kansas and North and North Central Texas crudes it buys 15 cents per barrel, meeting similar cuts posted July 8 by the Sinclair in Oklahoma, The Texas Co. and the Humble Oil & Refining Co. both in North, North Central and Central Texas.

Although Stanolind's price cut was announced earlier July 9 as effective in Texas only, it was extended to Oklahoma and Kansas fields later the same day.

Its gravity schedule in these fields is unchanged, as is the price differential of 1 cent. The cut was a straight one of 15 cents on all grades, beginning with a new price of 10 cents for oil below 29, plus 1 cent for each additional degree of gravity, to top grade of 40 and above, which is 22 cents.

Last previous change by Stanolind on Mid-Continent crude was a cut of from 18 to 30 cents, June 1.

HOUSTON—July 8 Humble Oil & Refining Co. initiated the following reductions ranging from 9 to 17 cents in all Texas crudes which it buys on a gravity basis:

North and North Central Texas: Ranger, North Texas, Moran, Mexia, Powell, Boggy Creek, Richland, Wortham and Currie, all grades cut 15 cents

Panhandle: Gray county, 11 cents; Carson and Hutchinson counties, 10 cents.

West Texas: Winkler, Pecos, Crane, Upton, Crockett, Ector, Howard and Glasscock counties, 15 cents.

South and southwest Texas: Mirando, cut 9 cents; Pettus, 15 cents; Salt Flat and Darst Creek, 17 cents.

Gulf Coastal: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junc-

Crude Oil Prices (in Effect July 13, 1931)

Crude prices for the whole year in OIL PRICE HANDBOOK published annually

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Bradford—Alleghany district (posted by Tide Water Pipe Co., Ltd.) (Effective July 11, 1931).....$1.60
Penna. Grade Oil in National Transit Lines (Effective July 11, 1931).....*1.35
Penna. Grade Oil in Southwest Penna. Pipe Lines (Effective July 11, 1931)..... 1.20
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) (Effective July 11, 1931)... 1.10
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) (Effective July 11, 1931)... 0.95
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective July 11, 1931)..... 0.50
Somerset oil in main system of Cumberland Pipe Line (posted by Ashland Refining Co.) (Effective June 5, 1931).....$0.55
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929.).....$0.60
*Oil run prior to July 1, 1929 is 5c less per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., in Stoll lines (Effective July 13, 1931).....$0.35

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon), effective July 9, 1931, same gravity and price schedule as Stanolind posts in Oklahoma, Kansas and North Texas, which see below.

(Posted by Pure Oil Co.)

Midland, Midland County (July 11, 1931)...$0.37

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective July 11, 1931

Wooster	$0.58	Princeton	$0.40
Lima	0.55	Illinois	0.40
Waterloo	1.20	West Kentucky	0.35
Indiana	0.20		

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Effective June 4, 1931

Petrolia.....$1.75
Oil Springs..... 1.82

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of *Stanolind Crude Oil Purchasing Co.

(In Oklahoma, Kansas, North and North Central Texas)

Effective July 9, 1931

Below 29	$0.10	35-35.9	$0.17
29-29.9	0.11	36-36.9	0.18
30-30.9	0.12	37-37.9	0.19
31-31.9	0.13	38-38.9	0.20
32-32.9	0.14	39-39.9	0.21
33-33.9	0.15	40 and above	0.22
34-34.9	0.16		

*Prairie Oil & Gas withdrew postings in Oklahoma, Kansas and Texas, Jan. 1, 1931.

Effective July 8, The Texas Co. and Humble met above prices in Texas; Sinclair in Oklahoma. On July 11, Texas Co. met in Oklahoma.

Humble Oil & Refining Co.

(In North and North Central Texas)

Effective July 8, Humble pays in North Texas, Ranger, Mexia, Powell, Boggy Creek, Richland, Wortham, Currie, and Moran, same prices as Stanolind in Oklahoma, Kansas, etc., which see.

East Texas postings discontinued June 3.

East Texas

East Texas.....$0.20

Above price posted by Magnolia, June 20; by Sinclair and Gulf, June 24.

OKLAHOMA, KANSAS and TEXAS

Magnolia Petroleum Co.
Effective June 20, 1931

Oklahoma:

Cushing, Morrison, Oklahoma City, Seminole, Wewoka and Yale.....$0.36
Cement, Duncan and Walters..... 0.32
Hewitt and Graham..... 0.28
Healdton..... 0.25

Kansas:

Augusta.....$0.30

Texas:

North and North Central:
Archer, Burkburnett, Comanche, Electra, Henrietta, Olden and Stephens.....$0.35
East Texas.....$0.20
East Central Texas:
Thrall.....$0.35
Central Texas:
Mexia, Wortham, Corsicana Light, Panola county and Lytton Springs.....$0.34
Panhandle:
Gray county.....$0.30
Carson-Hutchinson counties..... 0.26

LOUISIANA-ARKANSAS

North Louisiana:

Bull Bayou.....$0.36
Cotton Valley..... 0.25
Haynesville..... 0.27
Pine Island..... 0.32

Arkansas:

El Dorado and Rainbow.....$0.25

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective July 8, 1931

Hutchinson and Carson Counties:

Below 35	$0.11	38-38.9	$0.15
35-35.9	0.12	39-39.9	0.16
36-36.9	0.13	40 and above	0.17
37-37.9	0.14		

Gray County:

Below 35	$0.13	38-38.9	$0.17
35-35.9	0.14	39-39.9	0.18
36-36.9	0.15	40 and above	0.19
37-37.9	0.16		

Above prices met by The Texas Co. on July 8 in Hutchinson, Carson and Gray counties.

WEST TEXAS and NEW MEXICO

Humble Oil & Refining Co.

Effective July 8, 1931

Pecos, Winkler, Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, Tex., and Lea county, N. Mex.....$0.10

July 8, 1931, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble.

SOUTH and SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective July 8, 1931

Mirando.....$0.35
Salt Flat..... 0.20
Darst Creek..... 0.20
Pettus, Bee County..... 0.35

(Posted by The Texas Co.)

Effective July 8, 1931

Markham.....$0.25

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine, Sarepta and Carterville.

Effective July 11, 1931

Below 29	$0.10	35-35.9	$0.17
29-29.9	0.11	36-36.9	0.18
30-30.9	0.12	37-37.9	0.19
31-31.9	0.13	38-38.9	0.20
32-32.9	0.14	39-39.9	0.21
33-33.9	0.15	40 and above	0.22
34-34.9	0.16		

Smackover, all grades.....$0.15
Bellevue ..... Discontinued
Urbana..... 0.10
*Urania, La..... 0.30
†East El Dorado (Calion)..... 0.37
*Stephens, Ark..... 0.20

*Posted by Louisiana Oil Refining Corp. Stephens crude also posted by Atlantic Oil Producing Co.

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

June 2, 1931, The Texas Co. same schedule in Louisiana as Standard.

*GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective July 8, 1931

Below 25	$0.31	30-30.9	$0.37
25-25.9	$0.32	31-31.9	0.38
26-26.9	0.33	32-32.9	0.39
27-27.9	0.34	33-33.9	0.40
28-28.9	0.35	34-34.9	0.41
29-29.9	0.36	35 and above	0.42

Refugio heavy.....$0.35

On July 8, 1931, The Texas Co. posted same prices as Humble plus these additional grades: 36-36.9, $0.43; 37-37.9, $0.44; 38-38.9, $0.45; 39-39.9, $0.46; 40 and above $0.47.

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Raccoon Bend, Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia.

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tion, Raccoon Bend, Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia, 13 cents. Refugio heavy, 9 cents.

New Mexico: Lea county, 15 cents.

NEW YORK—July 8 The Texas Co. met Humble's cut in North Texas, North Central and Central Texas, in the Panhandle, in West Texas, New Mexico, and in southwest Texas where it buys Darst Creek and Markham, the latter being posted at 25 cents.

On July 11 it extended its Texas cut into Oklahoma.

It also met Humble in the Gulf Coast fields, except that The Texas Co. continues posting five additional higher grades, its top grade being 40 and above at 47 cents, while Humble's top grade is 35 and above at 42 cents. A 1 cent price differential remains for the entire Gulf Coast schedule.

DENVER—July 9 Midwest Refining Co. reduced Salt Creek, Wyo. crude 15 cents, posting its minimum grade of below 29 at 10 cents, with 1 cent additional for each additional degree of gravity, to top grade of 37 and above, which is 17 cents.

FINDLAY, O.—July 11 Ohio Oil Co. cut Central States crudes 15 cents, including Wooster, Illinois, Princeton, Lima, Indiana and Western Kentucky. New prices are: Wooster, $0.58; Lima, $0.55; Indiana, $0.20; Princeton and Illinois, $0.40; and Western Kentucky, $0.35.

NEW ORLEANS—July 11 Standard Oil Co. of Louisiana reduced North Louisiana and Arkansas crudes 15 cents on all grades, posting as its minimum price 10 cents for oil below 29, with 1 cent differential for each succeeding degree of gravity, to top grade of 40 and above, which is 22 cents.

SKILLED SUPERVISION

Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE—LUBRICATING OILS
NAPHTHA—GAS—OILS
WAX—PETROLEUM COKE
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Gulf Refining Company

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NORTH AMERICAN CAR CORPORATION
N.A.
A big fleet of *modern* cars;
4 large, privately owned shops to keep them in condition;
18 years' specialized experience.
SPECIAL *services to shippers, described on request. Address*
NORTH AMERICAN CAR CORPORATION
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Tank Cars for Lease. Domestic and Export Terminals Chicago, Tulsa, New Orleans.

This applies on Caddo, Homer, Haynesville, Bull Bayou, Sabine, Crichton, De Soto, El Dorado, Sarepta and Carterville. Postings on Cotton Valley and Bellevue were discontinued.

It also reduced Smackover crude 10 cents, to new price of 15 cents per barrel.

It posted Urbana crude for the first time, at 10 cents per barrel.

FINDLAY, O.—July 10 Ohio Oil Co. reduced Wyoming and Montana crudes 15 cents per barrel. New prices are: Grass Creek light and Elk Basin, $0.47; Big Muddy, $0.25; Lance Creek, $0.60; Rock Creek, $0.30; and Sunburst, Mont., $0.70.

DENVER—July 10 Midwest Refining Co. met reduction of Ohio Oil Co. in Rocky Mountain fields where it purchases, and reduced Cat Creek, Mont. and Hogback, N. Mex. crudes 15 cents, to new prices of $0.45 and $0.50 respectively.

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"BLUZOL." Ser. No. 313,009. Louis J. Silberman, doing business as Star Gasoline Co., St. Louis, Mo.

"STANORUST." Ser. No. 313,314. Standard Oil Co., Whiting, Ind. For rust preventing oils and greases.

Picture of Revolutionary soldier. Ser. No. 298,684. Beacon Oil Company, by change of name Colonial Beacon Oil Co., Boston, Mass. For refined, semirefined, and unrefined oils and grease made from petroleum, both with and without admixture of animal, vegetable or mineral substances for illuminating, burning, power, fuel, etc.

"LUCKY STRIKE." Ser. No. 312,024. Wilshire Oil Company, Inc., Vernon, Calif. For gasoline, kerosine, distillate, fuel oil, etc.

"SHELL." Ser. No. 312,389. Shell Oil Co., San Francisco, Calif. For gasoline, kerosine, gas oil, diesel oil, furnace fuel oil, motor lubricating oils, and transmission oils and lubricating greases.

"INDIAN CHIEF." No. 314,471.

Crude Oil Prices (in Effect July 13, 1931)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

ROCKY MOUNTAIN FIELDS

(Posted by Midwest Refining Co.)

(Effective July 9, 1931)

Salt Creek, below 29°	$0.10
" " 29-29.9	0.11
" " 30-30.9	0.12
" " 31-31.9	0.13
" " 32-32.9	0.14
" " 33-33.9	0.15
" " 34-34.9	0.16
Salt Creek 35-35.9	$0.17
" " 36-36.9	0.18
" " 37 and above	0.19

(Posted by Ohio Oil Co. and Midwest Refining Co.)

Elk Basin (Effective July 10, 1931)	$0.47
Grass Creek Light (Effective July 10, 1931)	0.47
Big Muddy (Effective July 10, 1931)	0.25
Lance Creek (Effective July 10, 1931)	0.60
Rock Creek (Effective July 10, 1931)	$0.30
Mule Creek	1.20
Rex Lake	1.10
Pondera (Effective July 10, 1931)	0.60
†Cat Creek, Mont. (Effective July 10, 1931)	0.45
Sunburst, Mont. (Effective July 10, 1931)	0.70
†Hogback, N. Mex. (Effective July 10, 1931)	0.50

†Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin. Others are prices of Ohio Oil Co.

CALIFORNIA CRUDE

††Standard Oil Co. of California

Effective June 19, 1931

	Signal Hill *Seal Beach *Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canon	Elwood Terrace	Torrance	Richfield	†Whittier †La Habra Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	**Athens **Rosecrans **Dominguez	**Santa Paula	**Orcutt
Gravity																			
14–19.9	$0.65	$0.65	$0.65	$0.65	$0.65	....	$0.65	.65	$0.65	$0.65	....	$0.55	$0.55	$0.55	$0.55	$0.55	....	$0.65	$0.55
20–20.9	.65	.65	.66	.65	.66	....	.65	.65	.65	.65	....	....	.55	.55	.55	.55	....	.65	.56
21–21.9	.65	.65	.68	.66	.67	....	.65	.66	.65	.65	....	....	.55	.57	.55	.55	....	.65	.57
22–22.9	.65	.66	.70	.67	.68	....	.66	.68	.65	.65	....	....	.56	.59	.55	.55	....	.65	.59
23–23.9	.67	.68	.72	.68	.70	F.o.b. Ship	.67	.70	.65	.66	....	....	.58	.60	.55	.55	....	.65	.61
24–24.9	.69	.70	.74	.69	.72		.68	.72	.65	.67	$0.65	....	.61	.62	.55	.55	$0.69	.66	.63
25–25.9	.71	.72	.76	.70	.74		.70	.74	.65	.69	.65	....	.64	.64	.57	.55	.71	.68	.65
26–26.9	.73	.74	....		.76	....	....	....	....	.71	.65	....	.66	.66	....	....	.73	.70	.67
27–27.9	.75	.76	....		.78	....	....	....	....	.73	.68	....	.68	.67	....	....	.75	.72	....
28–28.9	.77	....	....		.80	....	....	....	....	.75	.71	....	.71	.69	....	....	.77	.74	....
29–29.9	.79	....	....		....	....	....	....	....	.77	.73	....	.74	.71	....	....	.79	.76	....
30–30.9	.81	....	....		....	....	....	....	....	.79	.75	....	.76	.72	....	....	.81	.78	....
31–31.9	....	....	....		....	....	....	....	....	....	.78	....	....	....	....	....	.83	....	....
32–32.9	....	....	....		....	....	....	....	....	....	.80	....	....	....	....	....	.85	....	....
33–33.9	....	....	....		....	$0.79	....	....	....	....	.83	....	....	....	....	....	.87	....	....
34–34.9	....	....	....		....	.81	....	....	....	....	.85	....	....	....	....	....	.89	....	....
35–35.9	....	....	....		....	.84	....	....	....	....	.87	....	....	....	....	....	....	....	....
36–36.9	....	....	....		....	.87	....	....	....	....	....	....	....	....	....	....	....	....	....

Subject to field gathering charge of 5c per barrel.

*Seal Beach and Alamitos Heights prices end with $0.75 for crude 27 and above.

†Whittier and La Habra crude ends with 22-22.9 gravity.

**Posted by Union Oil Co. of California, effective June 20, 1931.

††Postings on Kettleman Hills, Ventura Avenue, Athens-Rosecrans and Dominguez discontinued by Standard. Kettleman Hills, 30 and above, posted at 66 cents by Associated Oil Co. and General Petroleum Co., June 19, 1931.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	July 13	July 6
Soda Ash Light 58% bags, cwt.	$1.20-1.38	$1.20-1.38
Silicate of Soda 60 deg. drums, cwt.	$1.75-1.90	$1.75-1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.70	$0.70
Silicate of Soda 40 deg. drums, cwt.	$1.00	$1.00
Sal Soda wks.	$0.90-1.20	$0.90-1.20
Caustic Soda 76% solid, cwt.	$2.25-2.50	$2.25-2.50
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$11.00-12.50	$11.00-12.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks., lb.	1.75	1.75

Compounders' Supplies

	July 13	July 6
Vegetable Oils		
Linseed carloads, spot, lb.	9.30	8.80
Tanks, spot	8.70	8.20
Soya Bean, Tank, coast, lb.	7.10	7.10
Oleic Acid		
Distilled, tanks, lb.	7.00	7.00
Distilled, bbls., lb.	7.875	7.875
Saponified, tanks, lb.	7.75	7.75
Saponified, bbls., lb.	8.625	8.625
Lard Oils		
Prime Winter Strained, lb.	12.25	12.50
Extra Winter Strained, lb.	8.50	8.75
Extra, lb.	8.25	8.50
Extra No. 1, lb.	7.875	7.75
No. 1, lb.	7.625	7.50
No. 2, lb.	7.00	7.25
Tallow oil, lb.	7.00	7.00
Neatsfoot Oil		
Pure, bbls., lb.	9.75	10.25
Extra, bbls., lb.	7.75	8.00
No. 1 bbls., lb.	7.25	7.75
Cold Pressed, lb.	13.25	15.00
Fish Oils		
Menhaden Oil Light Pressed, gal.	40–41	40–41
Light Pressed, tank cars, N. Y., gal.	29–30	30–32
Yellow bleached, gal.	43	42–44
Whale, extra winter bleached, gal.	75	75
Naval Stores		
Steam distilled turpentine, N. Y., gal.	47	51
Steam, distilled turpentine, Savannah, gal.	45	49
Gum turpentine, N. Y., gal.	53	53
Gum turpentine, f.o.b. cars Savannah, gal.	46	46
Wood Rosin, N. Y., bbl.	$4.60	$5.10
Wood Rosin F, Savn'h, bbl.	$4.50	$5.00
Gum Rosin B, N. Y., bbl.	$4.65	$4.60
Gum Rosin B, f.o.b. cars Savannah, bbl.	$3.90	$3.85
Rosin oil, pure, gal.	52	52
Rosin, oil, compounded, gal.	46	46
Pin Tar		
Kiln burnt, bbl.	$10.00-11.00	$10.00-11.00
Retort, bbl.	$11.00-12.00	$11.00-12.00
Alcohol		
Denatured Formula 5, in tanks, per gal.	24	24

Tecumseh Petroleum Co. Inc., Philadelphia, Pa. For petroleum lubricating oils. (This mark is accompanied with the picture of an Indian).

"FLEX-O-MATIC." Ser. No. 312,922. Lincoln Engineering Co., St. Louis, Mo. For stationary lubricating apparatus of automatic and semi-automatic type for greasing machinery comprising pumps, lubricant injectors, supply tanks and auxiliaries therefor.

"BARBARA WORTH," and portrait of woman. Ser. No. 313,054. Pioneer Truck and Transfer Co., El Centro, Calif. For gasoline, lubricating oil, motor fuel oil and furnace fuel oil.

"PABCO." Ser. No. 297,769. The Paraffine Companies, Inc., San Francisco, Calif. For paraffine oil and flux oil —namely, a lubricating oil and a skid oil respectively.

"SILVER REEF." Ser. No. 312,719. Pacific Commercial Co., New York City. For gasoline and kerosine.

OIL STOCKS AND FINANCES

Union Oil Reports Fall in Net Inventory Valuation Cut

CLEVELAND, July 13.

UNION OIL CO. OF CALIFORNIA estimates its net profit for the first half of 1931 at $1,900,000 after interest, depreciation, depletion, and estimated federal income taxes. This sum averages 43 cents a share on 4,386,070 shares of $25 par capital stock. This report was the first oil company statement on second quarter operations.

The company in the first half of 1930 netted $5,150,000 or $1.20 a share on 4,304,453 shares outstanding the first half of 1930.

The net income in the second quarter of 1931 is estimated by the company at $100,000, or approximately 2 cents a share. This compares with 59 cents a share in the second quarter of 1930.

The company reports it has written down its crude oil inventory to the prices that prevailed June 30. Refined products on hand have been reduced and valued at the cost of production based on the new crude oil prices, the company stated.

Current assets were reduced $11,000,000 from Dec. 31 to June 30, to $59,000,000, which sum was approximately 10 to 1 of current liabilities. Cash resources amounted June 30 to about $18,000,000 or about 3½ to 1 of current liabilities, which at $5,400,000,000 were $2,800,000 less than on Dec. 31. Mortgage indebtedness was decreased $1,921,000 in the half year.

The provision for depletion, depreciation and drilling expenditures was $2,650,000 less than in the first six months last year, due to the fact that the company was operating an average of only seven strings of tools in California during the first half of 1931, compared with 27 strings for the 1930 period, and also to decreased production of crude oil through further curtailment in California.

Re-enters Oil Business At Kansas City

TULSA, July 11.—Alex A. Smith, Kansas City, is re-entering the oil business.

The man who gave that city, back in 1913, its first drive-in gasoline station, has leased property at 2940 Terrace St., for the establishment of a bulk plant. Later he plans to establish retail stations of the superservice type.

Mr. Smith, as head of the Monark Gasoline and Oil Co., built up a large business in Kansas City and vicinity. He sold this company to the Manhattan Oil Co. which later was acquired by Independent Oil & Gas Co., still later merged with Phillips Petroleum Co.

When Mr. Smith sold his business, consisting of 66 service stations, on June 30, 1926, he agreed not to reenter the oil business for five years. At that time he planned to retire. That five year agreement expired recently and Mr. Smith immediately announced his plans.

Mr. Smith at first will handle the retail distribution of gasoline, lubricating oil and fuel oil.

N. J. Employes Get Stock at $34

NEW YORK, July 10.—Directors of Standard Oil Co. (N. J.) have set $34 a share as the price for the sale of stock to employes in the second half of 1931 under the company's third stock purchase plan. The price in the first half of 1931 was $47.50 a share and in the second half of 1930 $69 a share. The New Jersey stock is now selling around 38.

Converting Locomotives From Coal to Oil

WICHITA, Kans., July 11.—The Rock Island railroad is converting locomotives on 1061 miles of its line in the Southwest from coal to oil burners. Lines to be converted are south and west of Kansas City, Mo.

The railroad will convert 231 locomotives within the next 60 to 90 days. Oil storage and fueling stations will be installed at Topeka, Cline, Caldwell, Wichita, Clay Center, Herington and McFarland, Kans., and Haileyville, Hobart, Lawton, Enid, Ardmore and Anadarko, Okla. The conversion is said to be the largest undertaken at one time in this area.

Socony Stockholders Vote July 30 on Merger

NEW YORK, July 10.—Standard Oil Co. of New York stockholders will vote at a special meeting July 30 to increase the authorized capital stock from $450,000,000 to $1,000,000,000 divided into 40,000,000 $25 shares, to change the name to the Socony-Vacuum Corp., and to approve a merger with Vacuum Oil Co.

Vacuum Oil Co. stockholders will meet the same day to vote on the projected merger on a basis of one share of Vacuum for two and a half shares of Socony-Vacuum. Standard of New York stockholders will receive stock in the Socony-Vacuum Corp. share for share for their present holdings.

Although it has not been officially stated, the merger is assured in spite of some opposition to the terms arising from California stockholders of the Standard company.

New Stations Building

Note: Material used in this column is taken principally from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy. Headquarters of companies and addresses of individuals are given wherever possible.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Service Stations

Jonesville, Mich.—Sun Oil Co., 1428 S. Penn Sq., Philadelphia, Pa.
Lakeview, Mich.—S. William Nielsen.
Kansas City, Mo.—Gidinsky Construction Co., Gregory Blvd. & Askew Ave.
Cedar Falls, Ia.—Bruce Russell, 18th & Main Sts.
Baxter Springs, Kans.—S. A. Douthit & C. E. Rumery, Columbus, Kans.
Escanaba, Mich.—Escanaba Oil Co.
Minneapolis, Minn.—R. H. Fairfield, Wayzata, Minn.
Oelwein, Ia.—Continental Oil Co., Ponca City, Okla.
Columbus, O.—Miller Oil Co.
Chagrin Falls, O.—Columbia Refining Co., 2890 E. 83rd St., Cleveland, O.
Palmyra, N. J.—O'Donnell & Son, Inc.
Versailles, Ind.—Stoll Oil Refining Co., Louisville, Ky.
Brisco's Corners, Ind.—Lon Hoppes.
St. Louis, Mich.—Imperial Oil Co., Bay City, Mich.
Burton City, O.—H. M. Garver.
Coshocton, O.—Russell Taylor, West State & Goodrich Sts.
Quarryville, Pa.—John C. Book.
Waterloo, Ia.—J. E. Armstrong, Falls & Ansborough Aves.
Decorah, Ia.—Bud Bucknell.
Wausau, Wis.—F. Seefeldt & E. Will, 612 Fulton St.
Marquette, Mich.—F. C. Yates, 710 N. 3rd St.

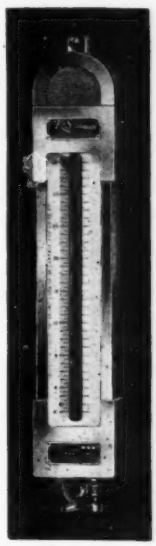
Ironwood, Mich.—Supreme Oil Co., Frank Gentile, Sec., Hurley, Wis.
Escanaba, Mich.—Dewey Meunier, Ludington & 7th Sts.
Ishpeming, Mich. — Sundblad Bros., Cleveland Ave. & 2nd St.
Fort Wayne, Ind.—Sinclair Refining Co., Conway Bldg., Chicago, Ill.
Columbus, O.—Robert Oestreicher, 921 Kelton Ave.
St. Paul, Minn.—Cities Service Oil Co., 1745 University Ave.
St. Paul, Minn.—Trackage Oil Co., 1685 University Ave.
Sweetwater, Tenn. — Mrs. Ben D. Jones.
East Manchester, Ky.—Standard Oil Co. of Kentucky, Louisville, Ky.
Eaton Rapids, Mich.—Chas. Oliver, Lansing Rd.
Brazil, Ind.—Home Oil Co., Vincennes, Ind.
Minneapolis, Minn.—Thorpe Bros. Co., 519 Marquette Ave.
Port Clinton, O.—Flogus Garage, Harrison St. & Fremont Rd.
Cedar Rapids, Ia.—Continental Oil Co., Ponca City, Okla.
South Harrisburg, Pa.—Keystone Oil Co.
Cuero, Tex.—The Texas Co., Houston, Tex.
Holyoke, Mass.—William T. Thompson, 337-339 Beech St.
Canastota, N. Y.—Standard Oil Co. of New York, 26 Broadway, New York, N. Y.
Winnipauk, Conn.—Arthur Joseph.
Syracuse, N. Y.—John Bruzdzienski, North Geddes & Spencer Sts.
Syracuse, N. Y.—Almina E. de Tommeso, Hawley Ave. & Elm St.
Lynchburg, Va.—A. R. Bateman, Grace St.
St. Mary's Pa.—Frank Krellner, Brussells St.
Trenton, Tenn.—R. R. Collins, College & First Sts.
Sullivan, Ill.—Fisher Oil Co.
Croswell, Mich.—McCaughey & Acheson.
Park Falls, Wis.—Mr. Ferkovich, Fourth Ave.
Sawyer, Wis.—Dr. M. O. Bentley.
Geneva, Ind.—Amos Cain, Portland, Ind.
Johnson City, Tenn.—Hayes Moore & George Peeler, Liberty Ave. & College St.
Lone Rock, Ia.—Arthur & Raymond Priebe, Fenton, Ia.
Burlington, Ia.—Carl Schwerin.
Canton, N. Y.—Standard Oil Co. of New York, 26 Broadway, New York, N. Y.
El Paso, Tex.—Gus Momsen, Second & Campbell Sts.
Pleasant Hill, Mo.—W. W. Hom, Paul & Lake Sts.
Bryan, Tex.—The Texas Co., Houston, Tex.
Bridgeport, Conn.—William M. Stowe, 54 Victory St.
Newburgh, N. Y.—Byron York, Lander St.
Hartford, Conn.—Atlas Oil Co., Main St., Clarion, Pa.
New Britain, Conn.—Standard Oil Co. of New York, 26 Broadway, New York, N. Y.
Garden City Park, L. I.—David Bondler, Nassau Blvd.
Upper Mills, N. Y.—L. Y. Robinson.
Pleasantville, N. Y.—Charlesy A. Dewey, Manville Rd. & Grant St.
Canton Harbor, Mich.—Gafill Oil Co.
Union City, Tenn.—E. K. Beck, South First St.
Dayton, O.—C. D. Elliott, 1210 East Main St., Springfield, O.
Monticello, Ind.—Sinclair Refining Co., Conway Bldg., Chicago, Ill.

THE K-S TELEGAGE FOR LIQUID MEASUREMENT
ACCURATE - DEPENDABLE

TEMPERATURE CHANGES *DO NOT* AFFECT TELEGAGE READINGS

The expansion and contraction of gasoline due to temperature changes is a vital problem in the petroleum industry. 20,000 gallons of gasoline at 90° F becomes 19,760 gallons at 70° F.

For accurate results with the old fashioned stick or tape method or any mechanical method of liquid measurement a temperature correction is necessary. With the Telegage system (because the Telegage is a balanced scale with the head of a known liquid balanced against the head of liquid in the tank) correction to 60° F is automatic and positive.



Modernize your plant with the Telegage System of Liquid Measurement. In addition to automatic temperature correction it will.

1. Centralize responsibility.
2. Check innage and outage.
3. Eliminate the risk of climbing tanks for sticking or taping.
4. Reduce the fire hazard caused by open hatches.
5. Eliminate the loss of vapors due to open hatches for sticking.
6. Give a constant inventory.
7. Check purchases.
8. Eliminate penciling.

TELEGAGE

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Warren, Pa.

Transactions in Oil Shares on New York Stock Exchange

1930 High	1930 Low	1931 High	1931 Low	Listed Shares	Par Value	Company	Div. Rate Period	Last Div. Paid	Transactions Week Ended July 11 Sales Shares	High	Low	Last	Week's Change
31½	16½	23	15½	922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 31	1,900	20½	17¾	18¾	— 2
37	5⅛	12⅜	5	209,180	N.P.	American Republics Corp.	....	.....	.....	....	....	....	....
51	30	31	20	2,240,000	$25	Associated Oil Co.	25cQ	June 30, 31	.....	....	....	....	....
51⅜	16⅝	23⅝	11¼	2,691,764	25	Atlantic Refining Co.	25cQ	June 15, 31	10,200	16¾	15	15⅛	— ⅞
34	8⅝	14½	5¾	2,257,678	25	Barnsdall Corp. A.	25cQ	Mar. 16, 31	10,700	8¾	7⅜	8¼	— ⅜
35	21	25	25	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	.....	....	....	....	....
20⅝	8¾	10¼	7½	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	700	8½	8½	8½	+ ¼
30½	7¾	12	5	4,712,745	N.P.	Continental Oil Co. (Del.)	....	.....	19,000	9	7½	8⅜	— ⅝
71⅛	22⅜	47	15¼	413,333	N.P.	General Asphalt Co.	75cQ	June 15, 31	8,100	26	21½	23	— 2¼
116⅞	29¼	68½	27	97,071	$100	Houston Oil Co.	....	.....	12,100	46⅞	38½	40¼	— 6½
11⅜	6⅜	14⅜	6	673,414	25	do new	....	.....	4,300	10	8⅝	9	— 1⅜
28⅜	3	4⅜	2	556,356	10	Indian Refining Co.	....	Dec. 15, 20	100	2⅛	2⅛	2⅛	— ⅜
12	3½	4½	2	1,309,003	N.P.	Louisiana Oil Ref'g. Corp.	....	.....	500	2⅜	2⅜	2⅜	— ⅜
90	66	55	34	40,000	$100	do pfd.	$1.62½Q	May 15, 31	10	34	†34	34	0
10⅜	1¾	3¾	1	330,000	N.P.	Maracaibo Oil Exploration Co.	....	.....	100	2	2	2	0
182	150	171	150	459,428	$100	Mexican Petroleum Co.	....	Apr. 20, 31	.....	....	....	....	....
100	100	100	100	120,000	100	do pfd.	$2Q	Apr. 20, 31	.....	....	....	....	....
37	9¾	20¾	10⅝	1,244,383	N.P.	Mexican Seaboard Oil Corp.	....	Oct. 15, 24	26,900	16½	14⅛	14¾	— 1½
33	11	16¾	5¾	1,857,912	N.P.	Mid-Continent Petroleum Corp.	....	Feb. 16, 31	7,000	10	8⅝	8¾	— 1⅛
32	16	19½	7	6,648,052	N.P.	Ohio Oil Co.	....	Mar. 14, 31	12,400	11	9¾	10⅝	— ⅝
64¼	42	35⅛	25	1,000,000	$50	Pan Amer. Pet. & Trans. Co.	....	Oct. 20, 27	.....	....	....	....	....
67½	30	36½	24	2,473,577	50	do B non-voting	....	Oct. 20, 27	.....	....	....	....	....
12¾	1¾	4¼	1½	199,370	N.P.	Panhandle Prod. & Refg. Co.	....	.....	400	2	2	2	0
80	47½	20	10	25,666	$100	do pfd.	....	July 2, 23	.....	....	....	....	....
27¼	5⅞	10⅞	6	3,726,084	N.P.	Petroleum Corp. of America	25cQ	June 1, 31	3,200	7⅜	7	7¼	— ⅜
44⅜	11½	16⅝	4¾	4,416,251	N.P.	Phillips Petroleum Co.	....	Jan. 2, 31	16,400	8⅞	7⅛	7¾	— 1
2½	½	1½	½	1,184,917	$25	Pierce Oil Corp.	....	.....	800	⅝	⅝	⅝	— ⅛
52	7½	23¾	6½	150,000	100	do pfd.	....	Feb. 1, 22	200	11½	10¼	10¼	— 2¼
7⅛	1⅜	3⅜	1	2,500,000	N.P.	Pierce Petroleum Corp.	10c	Feb. 16, 31	3,300	2⅜	2	2	— ¼
54	11¼	20⅜	6½	2,441,432	$25	Prairie Oil & Gas Co.	....	Mar. 31, 31	3,900	10¾	9½	10¼	0
60	16⅜	26½	14⅜	4,050,000	25	Prairie Pipe Line Co.	75cQ	July 1, 31	6,200	18⅜	17½	17⅝	— ¾
11⅞	1	6	1⅞	749,017	50	Producers & Refiners Corp.	....	Sept. 15, 23	600	3¼	3	3	— ¼
40	11½	16	6½	56,907	50	do pfd.	....	May 4, 25	.....	....	....	....	....
27¼	7⅝	11⅞	5½	3,038,370	25	Pure Oil Co.	....	Sept. 1, 30	7,700	8⅛	7	7⅜	— ¾
114¼	90½	101⅞	66⅜	130,000	100	do 8% pfd.	$2Q	July 1, 31	290	82	76	82	+ 5
28¼	4⅛	6⅜	1	2,126,250	N.P.	Richfield Oil Co. (California)	....	Sept. 1, 30	900	1⅝	1½	1⅝	— ¼
25⅝	5	10¼	3⅛	1,235,542	N.P.	Rio Grande Oil Co.	....	July 25, 30	4,100	4⅝	3⅞	4	— ½
56½	36⅞	42⅝	24⅞	681,728	$13.40	Royal Dutch Co. (N. Y. Shares)	$1.3404	Jan. 31, 31	2,000	32½	30½	30½	— 3¼
48⅜	26	34	24⅜	68,810	L2	Shell Transp. & Trading Co.	96.6c	Jan. 23, 31	.....	....	....	....	....
25½	5¼	10¼	4½	13,070,625	N.P.	Shell Union Oil Corp.	....	June 30, 30	15,200	7⅝	6⅜	6¾	— 1⅛
106¼	55	78	25½	400,000	$100	do pfd.	$1.37½Q	July 1, 31	1,600	58	53	53	— 2
37	5⅝	11	5	869,271	10	Simms Petroleum Co.	....	Sept. 15, 30	100	8	8	8	0
32	9¾	15⅞	6¼	6,148,294	N.P.	Sinclair Cons. Oil Corp.	....	Apr. 15, 31	71,500	11½	9½	10⅜	— 1⅜
112¼	86	103	77	141,294	$100	do pfd.	$2Q	May 15, 31	.....	....	....	....	....
42	10⅛	12⅞	3⅛	1,000,069	25	Skelly Oil Co.	....	Dec. 15, 30	600	5¾	4¾	4¾	— ¾
99¾	42	62	10	120,000	100	do pfd.	$1.50Q	May 1, 31	200	22½	22	22	+ 2
106⅜	98	105¼	99⅞	764,836	100	S. O. Export Corp. pfd.	$2.50 S.A.	June 30, 31	100	102½	102½	102½	0
75	42¼	51¾	31⅛	13,102,900	N.P.	S. O. California	62½cQ	June 15, 31	17,100	38½	36¼	36½	— 2
49	14⅜	19	8¾	320,000	$25	S. O. Kansas	....	Mar. 16, 31	200	11¾	10¾	10¾	— 2
84⅞	43½	52½	30⅝	25,548,466	25	S. O. New Jersey	††25cQ	June 15, 31	83,900	39⅞	36⅞	38	— 1½
46⅜	19¾	26	13⅞	17,849,353	25	S. O. New York	40cQ	June 15, 31	52,000	18⅛	17	17⅜	— ⅛
70	39	45¼	31	1,544,275	N.P.	Sun Oil Co.	25cQ	June 15, 31	300	36	35½	35½	— ½
108½	97¾	104½	94	100,000	$100	do pfd.	$1.50Q	June 1, 31	40	101¾	101½	101¾	+ ¼
9⅜	¾	1¾	¾	776,979	N.P.	Superior Oil Corp.	....	.....	3,100	¾	⅝	¾	— ⅛
60½	28¼	36¼	18	9,851,163	$25	The Texas Corp.	50cQ	July 1, 31	18,100	14¼	21⅞	22⅞	— 1½
14½	4	6½	2½	930,404	10	Texas Pacific Coal & Oil Co.	....	Dec. 31, 29	200	3⅝	3½	3⅝	— ½
17¾	5⅞	9	4	5,996,965	N.P.	Tide Water Associated Oil Co.	....	Feb. 16, 31	7,000	5¾	5	5½	+ ⅛
89¾	53	68	38	732,644	$100	do pfd.	$1.50Q	July 1, 31	900	47½	45	46	— 2
31	12	18	10½	2,191,820	N.P.	Tide Water Oil Co.	15cQ	June 30, 31	.....	....	....	....	....
94⅞	68	83	54	199,446	$100	do pfd.	$1.25Q	May 15, 31	100	55	55	55	— 4
50	20⅛	26⅝	14	2,325,006	25	Union Oil Co. of California	50cQ	May 9, 31	4,900	18¾	17⅜	17⅜	— 1⅜
38½	23	25⅛	20	1,254,048	N.P.	Union Tank Car Co.	40cQ	June 1, 31	1,300	21	20¼	20½	— 1
27	4¼	7⅜	1⅝	769,531	N.P.	Warner Quinlan Co.	....	July 3, 30	200	3¼	3	3¼	+ ¼
21	6½	9⅜	3½	428,967	N.P.	H. F. Wilcox Oil & Gas Co.	....	May 10, 28	200	6	6	6	0

*New high †New low ††Also extra—S. O. New Jersey 25c. Total sales 442,840.

Aviation Gasoline Prices

(Continued from Page 85)

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect July 13, 1931

	T.W.	Tax	Total T.W.
Newark, N. J.	14.9	*	14.9
Baltimore, Md.	16.2	4	20.2
Washington, D. C.	15	2	17

*New Jersey road tax of 3c does not apply on aviation gasoline, exemption being claimed at time of purchase.

All above prices are on Stanavo Aviation Gasoline.

COLONIAL BEACON OIL CO.

New York City	17.5	2	19.5
Boston, Mass.	19	3	22

S. O. PENNSYLVANIA

Philadelphia, Pa.	15	3	18
Pittsburgh, Pa.	15	3	18
Altoona, Pa.	15	3	18

S. O. OHIO

Thru Ohio	15	4	19

Discounts given by S. O. Ohio: For delivery to airports only; 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c; 24,000 gals. and over per month, 4c.

S. O. INDIANA

	T.W.	Tax	Total T.W.
Chicago	14	3	17
Indianapolis, Ind.	14.3	4	18.3
Detroit, Mich.	14.8	3	17.8
Milwaukee, Wis.	14.1	2	16.1
Minneapolis, Minn.	15.2	3	18.2
St. Louis, Mo.	13.4	2.5	15.9
Kansas City, Mo.	13.9	3	16.9
Fargo, N. D.	16.9	3	19.9
Huron, S. D.	15.3	4	19.3
Wichita, Kan.	12.8	3	15.8

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. Kansas City tax of 3c includes 1c city tax; St. Louis tax of 2.5c includes ½c city tax.

S. O. LOUISIANA

New Orleans, La.	18	6	24
Nashville, Tenn.	20	5	24
Memphis, Tenn.	19	5	24

2c per gal. discount off above posted retail t.w. prices to dealers and commercial consumers.

S. O. NEBRASKA

Omaha	16.25	4	20.25

2c per gal. refund to reseller.

CONTINENTAL OIL CO.

Denver, Colo.	13	4	17
Cheyenne, Wyo.	15	4	19
Helena, Mont.	18	5	23
Salt Lake City, Utah	13	4	17
Albuquerque, N. M.	15	*6	21
Boise, Ida.	17	5	22

*Tax includes 5c state tax and 1c city tax.

S. O. CALIFORNIA

Phoenix, Ariz.	17.5	4	21.5
Los Angeles, Cal.	16.5	3	19.5
San Francisco, Cal.	17	3	20
Reno, Nev.	21	4	25
Portland, Ore.	17.5	4	21.5
Seattle, Wash.	17.5	3	20.5
Spokane, Wash.	21.5	3	24.5

Note: 4c per gallon added to t.w. price, in S. O. California territory, to customers taking delivery direct into the fuel tank of planes.

New York Curb Bonds

Week Ending July 10

	High	Low	Last	Change
Cities Serv. 5s '66	66¼	65	66	— ½
Cities Serv. 5s '50	68⅞	65½	65½	—2½
Cities Serv. G 5½s '42	71¾	70¼	70½	— ¾
Cities Serv. G.P. 6s '43	84⅜	84¼	84¼	— ¼
Cont. Oil 5½s '37	86	86	86	+2
Empire O & R 5½s '42	60¾	60	60⅛	— ⅝
Gulf Oil 5s '37	102¼	102⅝	102¼	+ ¼
Gulf Oil 5s '47	102½	102⅛	102½	+ ½
Indep. Oil 6s '39	81	79	79	— ½
Sun Oil 5½s '39	102	99¾	102	+1

Pittsburgh Stock Exchange

Transactions Week Ended July 10, 1931

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas	25	4	4	4	— ¼
do pfd.	178	6⅛	5⅞	6⅛	+ ⅛
Leonard Oil & Development	1,000	.75	.75	.75	0
Lone Star Gas	1,428	18¼	17⅜	18	0
West. Pub. Serv.	1,073	9⅛	8½	8½	— ½

N.P.N. Service Record

This publication cannot undertake to make extensive compilations of oil market prices over a past period due to the amount of work involved.

Records of all prices quoted in NATIONAL PETROLEUM NEWS *are kept at all its branch offices where they may be referred to by readers. Or, oil prices are available through purchase of an OIL PRICE HANDBOOK, published annually by* NATIONAL PETROLEUM NEWS.

Arizona representative of large Pacific Coast producer-refiner-marketer furnished table of compression ratios of all 1931 passenger cars, together with information on ratio of lubricating oil sales to gasoline, and average grease consumption a year for all types of cars as worked out by leading grease manufacturer.

* * *

Michigan refiner furnished references to series of 12 articles on refining accounting published in N.P.N. in 1928-1929

* * *

Pennsylvania inquirer referred to two eastern distributors of liquefied petroleum gas.

* * *

Treasurer of Maryland oil marketing company told what deodorant to use for sweetening mineral spirits and kerosine, and where to purchase it.

* * *

New York oil marketer furnished names and addresses of six refiners who can ship at low freight rates into his city and furnished specifications for U. S. Motor and aviation gasolines.

* * *

Pennsylvania oil company member told what general practice is in making allowances for gasoline shortages at service stations due to temperature changes.

* * *

General superintendent of Texas oil terminal company advised as to asphaltic base character of Luling, Texas crude.

* * *

Iowa jobbing company owners calling at Houston office for general information about producing conditions, refineries operating in East Texas and oil conditions generally.

* * *

Texas pipeline company member furnished data on oil leases at Houston office.

* * *

Ohio chemist furnished names and addresses of refineries in Louisiana and Texas.

* * *

Texas inquirer given names and addresses of principal firms dealing in crude oil tank cars.

* * *

Florida inquirer given general information on oil leases with offer to discuss further upon receipt of more specific data.

* * *

Cleveland, O. inquirer advised regarding lease in Jackson county, Tex.

* * *

North Carolina inquirer furnished names and addresses of nine refiners making cleaning solvent; also seven Pennsylvania refiners of kerosine.

* * *

Missouri inquirer furnished list of Pennsylvania oil compounders.

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CHEMICAL ENGINEER M. S degree (M I T), six years petroleum refining experience, plan and laboratory. Fully capable of assuming charge of refinery laboratory. Address Box 755.

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All advertisements carried on this page are payable in advance.

Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 West 3rd Street, Cleveland, Ohio, unless otherwise specified.

Standard Oil Stocks on New York Curb Market

1930 High	1930 Low	1931 High	1931 Low	Shares Issued	Par Value	Company	Div. Rate Period	Last Div. Paid	Transactions Sales Shares	Week Ended July 11 High	Low	Last	Week's Change
25	11¼	12⅞	6¼	40,000	$25	Borne Scrymser Co.	....	Oct. 15, 30	100	7½	7	7	—1
69	39⅞	51	40	200,000	50	Buckeye Pipe Line Co.	$1Q	June 15, 31	50	44	44	44	+ 1¾
184⅞	100¼	129½	101	120,000	25	Chesebrough Mfg. Co.	††$1Q	June 30, 31	100	120	120	120	0
7⅝	3	3½	2	5,977,873	N.P.	Creole Petroleum Co.	.....	.....	1,200	3	2⅝	3	— ¼
65⅜	20¼	30	20⅝	30,000	50	Cumberland Pipe Line Co.	50cQ	June 15, 31	100	21	21	21	— 1¼
54¾	26	31	24	50,000	100	Eureka Pipe Line Co.	$1Q	May 1, 31	.....	....	....	....	....
6¾	2½	2⅞	1	280,000	N.P.	Galena Oil Corp.	.....	.....	.....	.....	.....	.....	.....
119	57¼	72	49⅞	2,974,645	$25	Humble Oil & Ref'g. Co.	50cQ	July 1, 31	1,800	66⅞	60¾	64	— 2
30	15	18½	9⅞	26,557,496	N.P.	Imperial Oil Corp.	12½cQ	June 1, 31	2,900	13½	12½	12½	— ½
28	15	18	10	.....	N.P.	do registered	12½cQ	June 1, 31	.....	....	....	....	....
41	14½	21⅜	9⅛	300,000	$10	Indiana Pipe Line Co.	25cQ	May 16, 31	200	12	11½	11½	— ½
24	11⅜	15½	8¾	14,247,088	N.P.	International Petroleum Co.	25cQ	June 15, 31	9,900	12¼	11½	11⅝	— ⅛
22⅜	11½	17½	11¼	509,000	$12.50	National Transit Co.	25cQ	June 15, 31	200	12⅝	12½	12½	— ¼
21	10⅜	14½	7½	100,000	10	New York Transit Co.	††15cQ	July 15, 31	.....	....	....	....	....
54	26¼	30	25	40,000	50	Northern Pipe Line Co.	††$1.50Q	July 1, 31	100	25½	†25	25½	— 1½
108	100⅜	102⅞	80	579,465	100	Ohio Oil Co. pfd.	$1.50Q	June 15, 31	100	87½	87½	87½	+ 1½
32	12	15½	8	400,000	25	Penn Mex. Fuel Co.	75c	June 24, 31	.....	....	....	....	....
....	....	18¼	17¼	.....	....	Socony-Vacuum Corp. w.i.	....	.....	.....	.....	.....	.....	.....
33	4⅞	8	3¼	160,000	25	Solar Refining Co.	....	Dec. 20, 29	400	4⅜	4⅜	4⅜	— 1⅛
20⅛	6¾	17	10	100,000	10	Southern Pipe Line Co.	50cQ	June 1, 31	.....	....	....	....	....
45⅞	18	23⅞	12⅜	1,200,000	25	South Penn Oil Co.	25cQ	June 30, 31	300	14½	12¾	13	— 1⅞
64	32	38	31¼	35,000	50	Southwest Pa. Pipe Lines.	$1Q	July 1, 31	.....	....	....	....	....
59⅞	30	38½	19⅛	16,850,587	25	S. O. Indiana	50cQ	June 15, 31	17,400	28	26	26¾	— 1¼
40½	18⅞	23⅝	15⅝	2,588,735	25	S. O. Kentucky	40cQ	June 30, 31	3,200	19⅛	18⅛	18⅛	0
48⅞	34	36½	19¼	190,822	25	S. O. Nebraska	50cQ	June 20, 31	200	25	23¼	23¼	— 2
108½	43¼	62½	35	766,667	25	S. O. Ohio	62½cQ	July 1, 31	950	43½	42½	42½	— 1
....	....	115¼	101¼	120,000	100	do 5% pfd.	$1.25Q	July 15, 31	40	102	101½	101½	+ ¾
10	4	10	2⅝	34,158	25	Swan Finch Oil Corp.	....	Jan. 15, 29	100	2⅝	†2⅝	2⅝	— ⅛
97⅞	45⅜	69¾	22⅛	5,624,158	25	Vacuum Oil Co.	50cQ	June 20, 31	13,800	43⅛	40½	41¾	— 1¼

*New high †New low ††Also extra—Chesebrough 50c; N. Y. Transit 10c; Northern P. L. 50c.

Oil and Royalty Stocks on New York Curb

1930 High	1930 Low	1931 High	1931 Low	Par Value		Transactions Sales Shares	Week Ended July 11 High	Low	Last	Week's Change
4½	½	1¾	½	N.P.	American Maracaibo	500	⅞	¾	¾	0
16¾	4⅝	6½	3⅛	N.P.	Arkansas Nat. Gas	1,400	4¼	3¾	4⅛	+ ⅛
16⅝	4⅝	6¾	3	N.P.	do A	9,800	4⅛	3¾	3⅞	— ¼
8⅛	6¼	7	5⅛	$10	do pfd.	200	6⅛	6	6	— ⅛
1	¼	1	⅛	N.P.	Atlantic Lobos	.....	....	....	....	....
1½	⅛	3¼	1	$50	do pfd.	.....	....	....	....	....
21	13⅜	16⅞	8½	N.P.	British American coup.	300	11½	11¼	11¼	0
....	....	10¼	10	N.P.	do registered	.....	....	....	....	....
2¾	⅝	2⅜	½	$¼	Carib Syndicate	2,300	1½	1¼	1¼	— ⅛
44¼	13⅛	20⅜	9¾	N.P.	Cities Service	93,600	12⅝	11	11⅛	— 1⅝
93⅞	78¼	84⅜	61¼	$100	do pfd.	700	67¼	65⅞	65⅞	— 1⅜
9	7¼	7½	5⅛	10	do pref. B	300	6¼	6	6	+ ½
89⅞	80	78½	59½	100	do pref. BB	100	62½	62½	62½	+ 3½
8¼	1⅛	3⅛	¾	N.P.	Colon Oil Corp.	1,400	1⅜	1⅜	1½	— ¼
21	3⅜	7⅛	2	N.P.	Col. Oil & Gas. vtc.	1,800	4	3⅝	3⅞	+ ¼
5⅞	2	2¾	1½	$1	Consolidated Royalty	.....	....	....	....	....
74¾	1¼	3¾	1	N.P.	Cosden Oil	100	1⅛	1	1	— ⅛
70	10¼	15	1	$100	do pfd.	.....	....	....	....	....
1	¼	⅝	¼	N.P.	Crown Central Petrol.	200	¼	¼	¼	0
21¾	2½	5	2	N.P.	Darby Petroleum	.....	....	....	....	....
11	2	6	2½	N.P.	Derby Oil & Refining	100	3¼	3¼	3¼	0
60	30	40¼	26	N.P.	do pfd.	.....	....	....	....	....
106⅞	58½	76	38	$25	Gulf Oil Corp.	6,700	60⅞	55	58	— 4⅜
40¾	36	9¼	9¾	....	Honolulu Oil Corp.	.....	....	....	....	....
47½	12⅝	16⅞	10	N.P.	Indian Ter. Ill'g. Oil A	400	10½	10¼	10¼	— ¼
53½	12⅝	16⅞	9⅞	N.P.	do B	.....	....	....	....	....
1¾	⅜	⅝	¼	$5	Intercontinental Petrol.	12,900	⅛	¼	⅛	0
3	⅞	1⅞	½	N.P.	Kirby Petroleum	100	⅞	⅞	⅞	0
4¾	½	1½	½	$25	Leonard Oil Devel.	300	¾	¾	¾	+ ⅛
29	4⅞	6¾	3½	N.P.	Lion Oil Refining	100	5	5	5	+ 1
55⅞	19⅝	29	14⅛	N.P.	Lone Star Gas	1,300	17⅞	17¼	17½	— ½
31	5½	....	....	$25	MacMillan Petroleum	.....	....	....	....	....
½	⅛	½	⅛	$1	Magdalena Syndicate	1,900	¼	⅛	¼	0
16	3	5	3½	N.P.	Margay Oil Co.	.....	....	....	....	....
7½	1¾	4⅞	1½	N.P.	Mexico-Ohio Oil	100	4¼	4¼	4¼	+ ½
....	....	8⅞	2	N.P.	Michigan Gas & Oil	.....	....	....	....	....
11⅞	2¼	4⅝	2¼	N.P.	Mid. States Pet. A vtc.	.....	....	....	....	....
6	⅝	1½	¾	N.P.	do B vtc.	100	⅞	⅞	⅞	0
36½	5	11	3⅞	$5	Missouri-Kansas P.L.	4,700	5½	4¾	5	— 1⅜
6	⅜	⅝	¼	1	do B vtc.	400	⅛	⅛	⅛	— ⅛
¾	⅜	½	¼	1	Mountain & Gulf	1,000	¼	¼	¼	— ⅛
12½	3¾	5⅞	3⅛	10	Mountain Producers	600	3¾	3⅝	3⅝	— ⅛
41⅜	19⅞	26½	16⅞	N.P.	National Fuel Gas	2,000	19⅜	18¾	19	— ¾
3½	1¼	1½	½	$5	New Bradford Oil	.....	....	....	....	....
3⅛	2⅛	2⅛	2	10	New England Fuel	.....	....	....	....	....
16⅞	4	....	....	25	N. Y. Pet. Royalty	.....	....	....	....	....
....	....	6½	6½	10	N. American Oil	.....	....	....	....	....
11¼	2⅜	3¼	1⅛	N.P.	North Central Texas	.....	....	....	....	....
4⅛	⅝	2½	⅜	N.P.	North European Oil	200	1	⅞	1	— ⅛
11⅝	3⅛	5	1	N.P.	Oilstocks Ltd. A	.....	....	....	....	....
11½	4½	5	2½	N.P.	do B	.....	....	....	....	....
19½	5½	15	5	N.P.	Pacific Western Oil	1,600	6	5½	5½	— ½
2½	¼	¾	⅛	N.P.	Pandem Oil	2,700	¼	⅛	⅛	0
4⅜	1	2	⅜	N.P.	Pantepec of Venezuela	300	1	⅞	⅞	0
5⅞	½	1⅜	¼	....	Petroleum Corp. war.	.....	....	....	....	....
27½	16¼	19	6⅝	$5	Plymouth Oil	12,000	11	9	10¼	— ¼
8	3⅛	4½	1	N.P.	Producers Royalty	600	1¼	1	1¼	0
99	81¾	83½	15¾	$100	Pure Oil 6% pfd.	.....	....	....	....	....
10½	1½	2½	1¾	N.P.	Red Bank Oil	.....	....	....	....	....
5⅜	⅝	1⅜	½	N.P.	Reiter-Foster Oil	1,500	*1⅝	1⅛	1⅛	— ½
23½	6½	11	1¾	$25	Richfield Oil pfd.	.....	....	....	....	....
25	2¼	3½	1¾	N.P.	Root Refining pfd.	.....	....	....	....	....
12⅞	5½	3¾	1½	$10	Roy. Corp. of Amer. pfd	.....	....	....	....	....
8⅝	2	2⅞	1¼	N.P.	Ryan Consolidated	.....	....	....	....	....
2½	½	1⅜	¾	$10	Salt Creek Consol.	500	⅞	†¾	¾	+ ⅛
15¾	5¼	7⅝	4	10	Salt Creek Producers	.....	....	....	....	....
8	1¾	4	2	25	Shreve. El Dorado P.L.	.....	....	....	....	....
17	6	7½	3¾	N.P.	Southland Royalty	700	4¾	4⅛	4⅛	— ⅛
10	2	5¼	1	$5	Sunray Oil	2,000	2⅛	1⅞	1⅞	0
19½	8	12⅞	7½	N.P.	Texon Oil & Land	300	7¾	7½	7¾	+ ⅛
47½	19	24½	13½	$25	Union Oil Associates	200	16⅛	16	16⅛	— ⅜
4½	⅝	1⅞	⅝	5	Venezuela Petroleum	700	⅞	¾	¾	— ⅛
5	2	3½	2¾	1	Woodley Petroleum	.....	....	....	....	....
2½	⅜	2¼	¼	N.P.	Y Oil & Gas	4,800	*2¼	1½	2⅛	+ ⅜

*New high. †New low.

Dividends

Declared Last Week

Company and period	Amount	Payable	Stock of Record
Amerada Corp. q.	50c	July 31	July 15
Salt Creek Prod. q.	35c	Aug. 1	July 15
Shell Transport	72.6c	July 23	July 15
Tide Water 5% pfd. q.	$1.25	Aug. 15	July 16
Union Oil q.	50c	Aug. 10	July 18

Awaiting Payment

Company and period	Amount	Payable	Stock of Record
Cities Service m.	2½c	Aug. 1	July 15
do stock m.	½%	Aug. 1	July 15
do pref. m.	50c	Aug. 1	July 15
do pref. B m.	5c	Aug. 1	July 15
do pref. BB m.	50c	Aug. 1	July 15
Eureka Pipe Line q.	$1	Aug. 1	July 15
Indiana Pipe Line q.	25c	Aug. 15	July 24
McColl Frontenac pfd. q.	1¾%	July 15	June 30
Mexican Pet. pfd. q.	$2	July 20	June 30
New York Transit q.	15c	July 15	June 26
do extra	10c	July 15	June 26
Pan Amer. Pet. q.	40c	July 20	June 30
do B q.	40c	July 20	June 30
Prod. Royalty stk. q.	2½%	July 15	June 30
S. O. Ohio 5% pfd. q.	$1.25	July 15	June 30
Serv. Stations 6% pfd. q.	1½%	Aug. 1	July 15

Omitted Last Week

Company and period	Amount
Tide Water Associated com., s.a.	30c

New York Bonds

Week Ending July 10

	High	Low	Last	Change
Asso. Oil gold 6s	103¼	102¾	102¾	+ ¼
Atlantic Refg. deb. 5s	101⅝	101¼	101⅝	+ ⅛
Cal. Pet. 5½s	90⅛	90⅛	90⅛	+ ⅛
General Pet. 5s	103	102½	102¾	— ¼
Humble Oil & Refg. 5s	102½	102	102	+ ⅜
Humble Oil & Refg. 5½s	102½	102	102	+ ⅛
Pan Amer. P & T 6s	102	101⅝	101¾	+ ⅛
Pan Amer. P & T 6s	35	33¼	35	0
Pan Amer. P & T 6s	33	33	33	0
Phillips Pet. 5½s	63⅞	62	63	0
Pure Oil 5½s	86¼	85	86¼	0
Pure Oil 5½s	85	82	85	0
Richfield Oil of Calif. 6s	31¾	31	31	—1
Shell Union Oil 5s	81	77	78	—1
Shell Union Oil 5s with war.	81¼	77¼	79	—1⅞
Sinclair Con. Oil 7s	97⅞	97	97⅜	— ⅛
Sinclair Con. Oil 6½s	94½	94	94	0
Sinclair Con. Crude 5½s	102⅝	102⅛	102½	0
Sinclair Pipeline	102½	101	102½	+1
Skelly Oil 5½s	60	56	60	—1
S. O. N. J. 5s	104	103¾	104¼	+ ⅜
S. O. N. Y. 4½s	99⅞	99	99⅞	+ ¾
Union Oil of Calif. 6s A.	104	103¾	103¾	0
Union Oil of Calif. 5s C.	100	100	100	+ ½
Warner-Quinlan 6s	42½	42¼	42¼	— ½
White Eagle Oil 5½s	103	103	103	+ ½